



CONTRACT DOCUMENTS

FOR

CITY OF SEDONA

PUBLIC WORKS DEPARTMENT

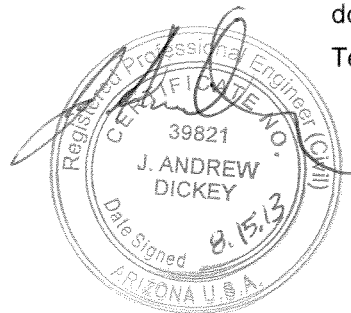
HARMONY-WINDSONG PHASE IV
DRAINAGE PROJECT

2012-110

City of Sedona
HARMONY-WINDSONG PHASE IV DRAINAGE PROJECT

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Seal is for entire
document except
Technical Specifications



ADVERTISEMENT FOR BIDS

**City of Sedona
Public Works Department
104 Roadrunner Drive
Sedona, AZ 86336**

Sealed bids for the construction of the **Harmony-Windsong Phase IV Drainage Project** will be received in the Office of the City Engineer/Public Works, located at 104 Roadrunner Drive, Sedona, Arizona, until **2:00 P.M. local time, September 5, 2013.** At that time, bids will be publicly opened and read aloud in the Public Works Department Conference Room. Bidders are invited, but not required, to be present at the bid opening.

PROJECT: Harmony-Windsong Phase IV Drainage Project

BASE BID: Construction of storm drain pipes, appurtenances, inlet structure, outlet connection to existing storm drain system.

ADDITIVE ALTERNATE #1: Sawcut, curb & gutter, grading, core drilling, and rip rap per Technical Specifications Section 2.2, Item 38.

PROJECT COST RANGE: The City does not release the Engineer's Estimate prior to opening bids, however, the City's policy is to provide a range that the estimate falls within. The range for this project is **\$1,000,000 - \$2,000,000.**

CONTRACT TIME: 130 calendar days after the Notice to Proceed.

LIQUIDATED DAMAGES: \$500 per day beyond the 130 calendar day Contract Time.

MANDATORY PRE-BID MEETING: Failure to attend and sign attendance sheet at mandatory pre-bid meeting shall render a bid non-responsive.

Copies of the Contract Documents, including plans and specifications for use in preparing bids may be obtained from the Office of the City Engineer/Public Works, 104 Roadrunner Drive, Sedona, Arizona (phone 928-204-7111; FAX 928-282-5348). The required deposit per set of plans and specifications is \$50.00, which will be refunded to those listed plan holders not submitting bids, if returned in good and useable condition within seven (7) days after the bid opening. Contract Documents may also be downloaded from the City of Sedona's website at www.SedonaAz.gov under your Business, Doing Business, Bids & RFPs. Downloaded documents may not be returned to the City of Sedona for any deposited refund. If plan documents are downloaded, the City will not be responsible for providing up-to-date information through the website or other communication methods.

PRE-BID CONFERENCE: Pre-bid conference (**mandatory**) will be held on **August 26, 2013, at 2:00 PM in the Vultee Conference Room, at 106 Roadrunner Drive, Sedona AZ.**

Each bidder's proposal shall be made on forms furnished in the Contract Documents, and must be accompanied by a security consisting of a certified check, cashier's check, or bid bond in an amount of not less than ten percent (10%) of the amount of the total bid amount, and made payable to the CITY OF SEDONA, ARIZONA. In the event the successful Bidder within ten (10) calendar days after award of the Contract fails to enter into a Contract or fails to post payment and

performance bonds satisfactory to the City insuring the faithful fulfillment of the Contract as required by law, the security deposit on this bid shall be forfeited to the City.

Contract Documents, with completed Bid Proposal, must be enclosed in a sealed envelope, addressed to:

HAND DELIVERED: City of Sedona
Office of the City Engineer/Public Works
104 Roadrunner Drive
Sedona, AZ 86336

U.S. MAIL: City of Sedona
Office of the City Engineer/Public Works
102 Roadrunner Drive
Sedona, AZ 86336

AND MARKED: Bid Proposal for **Harmony-Windsong Phase IV Drainage Project**

AND RECEIVED: **At the Office of the City Engineer/Public Works until 2:00 P.M. local time, September 5, 2013** (as determined by reference to www.time.gov ref Arizona area)

The successful Bidder will be required to furnish two (2) bonds. One (1) bond, to become effective upon award of the Contract, shall be a Performance Bond substantially in the form attached, and shall be in a sum of one hundred percent (100%) of the contract price including any additions to the Contract. The Bond shall be effective throughout the construction period, including a two (2) year warranty period. The successful Bidder shall also furnish a Labor and Material Payment Bond, substantially in the form attached, to become effective upon award. Said Labor and Material Bond shall be in the amount of one hundred percent (100%) of the Contract price.

The successful Bidder will be determined on the basis of the lowest responsive and responsible Proposal. The City of Sedona, Arizona reserves the right to reject any or all Proposals, to waive or not to waive any informalities, or irregularities in the Proposals received, and to accept a Proposal which in its judgment best serves the interests of the City.

All questions should be directed in writing to Stephen Craver, Associate Engineer, 102 Roadrunner Drive, Sedona, Arizona 86336, or email SCraver@SedonaAZ.gov.

FIRST ADVERTISEMENT: August 16, 2013
SECOND ADVERTISEMENT: August 21, 2013
RED ROCK NEWS

BY:  8/9/13
Charles Mosley, Public Works Director/City Engineer

INFORMATION FOR AND INSTRUCTIONS TO BIDDERS

The City of Sedona herein referred to as the "City" is defined as the City of Sedona, acting through its legally constituted officials, officers, and employees. The City may waive any informality or reject any or all bids. Any bid may be withdrawn prior to the scheduled time and date for the opening of bids or authorized postponement thereof. Any bid received after the time and date specified shall not be opened. No Bidder may withdraw a bid within forty-five (45) days after the actual day of the opening thereof.

Bid prices shall include everything necessary for the completion of the work including but not limited to, materials, equipment, tools, other facilities, management, superintendents, labor, services, insurance, overhead, profit, and Federal, State, and Local taxes.

Each bid must be submitted on the Bid Proposal provided and must be signed by the Bidder or his duly authorized agent. All blank spaces for bid prices must be filled in, in ink or typewritten, **IN BOTH WORDS AND NUMBERS** where called for in the Bid Proposal. If there is a discrepancy between the price in words and the price in numbers, the price in words will govern.

In case of an error in the extension of the unit price and the total, the unit price shall govern. In the event that the product of a unit price and an estimated quantity does not equal the extended amount quoted, the unit price shall govern, and the correct product of the unit price and the estimated quantity shall be deemed to be the amount bid. If the sum of two (2) or more items in the bid schedule does not equal the total amounts quoted, the individual item amounts shall govern and the correct total shall be deemed to be the amount bid. The bid shall not contain recapitulations of the work to be done.

Each bid must be submitted in a sealed envelope bearing on the outside the name of the Bidder, Bidder's address, and the name of the project for which the bid is submitted.

The City may by statements in the Special Provisions or other part of the specifications require submission of sealed Bid Documentation.

The City may make such investigations as City deems necessary to determine the ability of the Bidder to perform the work, and the Bidder shall furnish to the City all such information and data for this purpose as the City may request. The City reserves the right to reject any bid if the evidence submitted by, or investigation of, such Bidder fails to satisfy the City that such Bidder is properly qualified to carry out the obligations of the Contract and to complete the work contemplated therein. Conditional bids will not be accepted.

Bidders must correctly prepare and submit the documents listed below with their bids:

1. Bid proposal
2. Bid Guaranty Bond

3. Certification of the Bidder's experience and qualification and statement of Bidder's qualifications
4. List of all proposed Subcontractors
5. Schedule of manufacturers and suppliers, major equipment and material items
6. Non-collusion affidavit
7. Certificate of insurability
8. Signed Addenda

Each bid must be accompanied by either a certified check made payable to the City of Sedona, a cashier's check made payable to the City of Sedona or a bid bond, duly executed by the Bidder as principal and having as surety thereon a surety company licensed to do business in Arizona, in the amount of ten percent (10%) of the bid. The City may retain such checks or bid bonds, of the three (3) apparent lowest Bidders, for a period of forty-five (45) days after the bid opening.

Simultaneously with the delivery of the executed Contract, the Contractor shall furnish a surety bond or bonds as security for faithful performance of this Contract and for the payment of all persons performing labor on the project under this Contract and furnishing materials in connection with this Contract, as specified in the General Conditions included herein. The surety on such bond or bonds or contract bonds must file with each bond a certified and effectively dated copy of their Power of Attorney.

Each Bidder shall have listed, on the form entitled "Proposed Subcontractors", provided in the Proposal, the name, address, and description of the work of each Subcontractor to whom the Bidder proposes to sublet portions of the work in excess of one and one-half percent (1.5%) of the total amount of his Bid. For the purpose of this paragraph, a Subcontractor is defined as one who contracts with the Contractor to provide materials and labor, labor only, or who specially fabricates and installs a portion of the work or improvement according to drawings contained in the Contract Documents. Failure to list Subcontractors may render a Bid non responsive and may be grounds for rejection of the Bid. Attention is called to the General Conditions Article 13, limiting the total amount of the work, which may be performed by Subcontractors. Alternate Subcontractors for the same work shall not be listed in the bid. However, substitute Subcontractors may be considered as long as they comply with the requirements of these Contract documents.

Subcontractors listed by the Bidder must be competent and experienced in the type of work which they are to perform. No Contractors shall be required to employ any Subcontractor, other person or organization against which he has reasonable objection.

As evidence of his competency to perform the work, Bidder shall complete and submit with his Bid the Bidder's Statement of Qualifications which is bound in the Contract Documents. Low Bidders may be asked to furnish additional data to demonstrate competency. Bidders must be, at the time of

bidding and throughout the period of the Contract, licensed as required by the State of Arizona, thoroughly competent, and capable of satisfactorily constructing the Project. Bidder shall certify that he is skilled and regularly engaged in the general class and type of work called for in the Contract Documents. Additionally, Bidders shall comply with all provisions of Arizona Revised Statutes, Title 32, Chapter 10. Further, the Bidder certifies that he is knowledgeable of the unusual and peculiar hazards associated with the general class and type of work required to construct the specific project within the terms given in the Contract Documents. Bidder shall be competent and skilled in the protective measures necessary for the safe performance of the construction work with respect to such unusual and peculiar hazards.

The selected Bidder, upon Bidder's failure or refusal to execute and deliver the Contract and bonds required within ten (10) consecutive calendar days from and including the date Bidder received notice of the acceptance of his bid, shall forfeit to the City, for such failure or refusal, the security deposited with his bid.

Bidders are required prior to submitting a bid to inspect the site of the work and satisfy themselves by personal examination or by such other means as they may prefer, as to the location of the proposed work, and of the actual conditions.

Entrance by Bidders to the site of the work for purposes of making exploratory excavations shall be by special arrangement with the City Engineer under conditions established by the City. If, during the course of such an examination, a Bidder finds facts or conditions which appear to be in conflict with the Contract Documents, the Bidder must notify the City Engineer and may apply to the City Engineer, in writing, for additional information and explanation before submitting its bid.

Any information provided by the Design Engineer, the City, or any City personnel is not intended to be a substitute for, or a supplement to the independent verification by the Bidder to the extent such independent investigation of site conditions is deemed necessary or desirable by the Bidder. Bidder acknowledges that he has not relied upon City, City personnel, or Design Engineer furnished information regarding site conditions in preparing and submitting a bid hereunder. The Plans show conditions as they are believed to exist, but it is not intended nor is it to be inferred that the conditions as shown therein constitute a representation by the City or any of its officers that such conditions actually exist, nor shall the City or any of its officers be liable for any loss sustained by the Contractor as a result of any variance between any conditions as shown on the Plans and the actual conditions revealed during the progress of the project, or otherwise.

Any subsurface investigations, which may have been conducted at the site of the work, and the corresponding report, may be examined at the City office. Soil investigations, if performed, were conducted for design purposes, and the data shown in the reports are for subsurface conditions found at the time and location of the investigation. The Contractor shall note that there will be no separate payment for rock excavation.

The City disclaims responsibility for the interpretation by Bidders of data, such as projecting or extrapolating from the test holes to other locations on the site of the work, soil bearing values and profiles, soil stability and the presence, level and extent of underground water for subsurface

conditions during construction operations.

The lands upon which the work is to be performed, right of way for access thereto, and other lands designated for use by the Contractor in performing the work are identified in the Supplemental Conditions or Drawings.

Submission of a bid by the Bidder shall constitute acknowledgement that, if awarded the Contract, the Bidder has relied and is relying on his own examination of (1) the site of the work, (2) access to the site, and (3) all other data and matters requisite to the fulfillment of the work and on his own knowledge of existing facilities on and in the vicinity of the work to be constructed under the Contract.

The Bidders shall examine carefully the Plans and Specifications and the site of the proposed Project and shall solely judge for themselves the nature and location of the work to be done and all the conditions; and the submission of a Bid shall be deemed as conclusive evidence that a Bidder has made the necessary investigation and is prima facie evidence that he is satisfied with the conditions to be encountered, quantity and quality of the work or materials to be performed or furnished, and the requirements and provisions of the Plans and Specifications and the Contract Documents. The Bidder agrees that if he is awarded the Contract he will make no claim against the City, the City Engineer, or any other City officials or City personnel based on ignorance or misunderstanding of any of the provisions of the Contract Documents, nor because of any unforeseen subsurface conditions except in the manner and under the circumstances as provided in the Contract Documents.

Each Bidder must inform himself fully of the conditions relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve a successful Bidder of his obligation to furnish all material and labor necessary to carry out the provisions of his Contract. Insofar as possible, the Contractor, in carrying out his work, must employ such methods or means as will not cause any interruption of or interference with the work of any other Contractor.

All applicable state laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over construction for the project shall apply to the Contract throughout, and they will be deemed to be included in the Contract the same as though herein written out in full.

No interpretation of the meaning of the plans, specifications or other pre-bid documents will be made to any Bidder orally. Every proper request for such interpretation shall be made in writing, and to be given consideration must be received at least five (5) days prior to the date fixed for the opening of bids. Any and all such interpretations and any supplemental instruction will be in the form of written addenda to the Contract Documents which, if issued, will be emailed to all prospective Bidders (at the respective addresses furnished for such purposes), not later than three (3) calendar days prior to the date fixed for the opening of bids. At any time prior to an announced bid opening time the City reserves the right to issue an addendum extending the bid opening time by one or more days. Failure of any Bidder to receive any such addendum or interpretation shall not relieve such Bidder from any obligations under his bid as submitted. All Addenda so issued shall become part of the Contract Documents. It shall be the responsibility of each Prospective Bidder to verify that each addendum has been received applicable to the project. Bidders are responsible to check the City website at

www.sedonaaz.gov periodically to verify if new addenda have been posted and shall ensure a reliable and accurate email address is provided to the City to be added to the Plan Holder's List. In order to be added to the Plan Holder's List, a bidder shall either purchase plans from the City of Sedona, or submit a request from the email address intended to be used as the bidder's contact email address, to the project manager listed on page I-3.

Before submitting a Proposal, Bidders shall carefully examine the Plans, read the specifications and all other Contract Documents, visit the site of the project, and fully inform themselves as to all existing and local conditions and limitations. It is expressly stipulated that the drawings, Specifications and other Contract Documents set forth the requirements as to the nature of the work and do not purport to control the method of performing work except in those instances where the nature of the completed work is dependent upon the method of performance.

Submission of a bid shall constitute acknowledgment, upon which the City may rely that the Bidder has thoroughly examined and is familiar with the Contract Documents. Failure or neglect of a Bidder to examine any of the Contract Documents shall in no way relieve him from any obligation with respect to his bid or to the Contract. No claim for additional compensation will be allowed which is based on a lack of knowledge of the work, or of the Contract Documents.

The quantities of the various classes of work to be done and material to be furnished under this Contract, which have been estimated as stated in the Proposal, are only approximate and are to be used solely for the purpose of comparing, on a consistent basis, the Proposals offered for the work under this Contract. The Contractor agrees that the City will not be held responsible if any of the quantities shall be found incorrect; except that in the event that the Contract price may be increased or decreased in accordance with Article 30 of the General Conditions through the issuance of the appropriate change orders to reflect the actual quantities of all items constructed, installed or incorporated in the work, the Contractor will not make any further claim for damages or for loss of profits because of a difference between the quantities of the various classes of work as estimated and the work actually done. If any error, omission, or misstatement is found to occur in the estimated quantities, the same shall not invalidate the Contract or release the Contractor from the execution and completion of the whole or any part of the work in accordance with the Specifications and the Plans herein mentioned, and for the prices herein agreed upon and fixed therefore, or excuse him from any of his obligations or liabilities hereunder, or entitle him to any damages or compensation except as may be provided in this Contract.

The successful Bidder, upon award of a Contract, shall commence work on the date specified in the "Notice to Proceed" and shall complete all work in accordance with the time schedule specified. Should the Contractor fail to complete all work in the allotted time period, liquidated damages shall be assessed as specified.

The City invites bids on the forms included as part of this Document to be submitted at such time and place as is stated in the Advertisement for Bids. All blanks in the Bid Proposal must be appropriately filled in with typewriter or ink. **Bidders are instructed not to turn in Bid Proposals that have been separated from the bound Contract Documents. It is the sole responsibility of the Bidder to see that the bid is received in proper time at the time and place stipulated in the**

Advertisement For Bids. Any bids received after the scheduled closing time for receipt of bids will be returned to the Bidder unopened.

The bid must be signed in the name of the Bidder and must bear the signature in long hand of the person or persons duly authorized to sign the bid. Changes in or additions to the bid forms, recapitulations of the work bid upon, alternative proposals or any other modifications of the bid which are not specifically called for in the Contract Documents may be subject to City's rejection of the bid as not being responsive to the advertisements. No oral telephone modifications or telegraphic modifications of any bid submitted will be considered.

The bid submitted must not contain erasures, corrections or changes from the printed forms as completed in typewriter or ink, unless such erasures, corrections or changes are authenticated by affixing in the margin immediately opposite the erasure, correction or change, the full signature of the person who signed the bid or the signature of such other person as may be authorized by the Bidder to make erasures, corrections or changes in the bid, and said authorization must be evidenced by written confirmation, executed by the person authorized to sign the initial bid, attached to the bid at the time of submittal.

If the bid is made by an individual, his or her name, signature, and post office address must be shown; if made by a firm or partnership, the name and post office of the firm or partnership, a list of the partners, and the signature of at least one of the general partners must be shown; if made by a corporation, the bid shall show the name of the state under the laws of which the corporation is chartered, the name and post office address of the corporation, and the title of the person who signs on behalf of the corporation. All signatures must be made in long hand. If a corporation makes the bid, a certified copy of the By-laws or resolution of the board of directors of the corporation shall be furnished showing the authority of the officer signing the bid to execute contracts on behalf of the corporation. If the bid is made by a joint venture, a representative of each of the joint venture firms shall sign the bid. Additionally, the bid shall include a copy of the resolution or agreement empowering the representative to execute the bid and bind the firm to the joint venture.

The City reserves the right to pre-qualify all bids, post-qualify all bids, or reject all bids, not to make an award or accept the Proposal deemed most advantageous and in the best interest of the City. The City shall enter into a Contract with the lowest responsible responsive bidder whose proposal is satisfactory. A written Notice of Award will be sent to the successful Bidder(s).

OR APPROVED EQUAL CLAUSE -- Manufacturers or suppliers of materials and equipment may request that alternatives to specified products be considered equal and that inclusion of such alternatives be permitted in the bids. Such request must be made in writing and received by the City Engineer at least five (5) calendar days prior to the date bids are to be received. Granting a request that an alternative product be considered equal to those specified may be made only by the issuance of an Addendum by the City. Denial of the request during bidding does not waive the manufacturer's or supplier's right to offer the alternative product to the Contractor after Award of the Contract. After Award of Contract, the offer will be considered as a substitution as provided under Article 6 of the General Conditions and will be considered only if the Engineer believes the offer of substitution is equal to or superior in quality to the specified product.

PREPARATION OF BID

- A. City reserves the right to reject any or all Bids, to waive any or all informalities, and the right to disregard all nonconforming, non-responsive or conditional Bids.
- B. City reserves the right to reject any Bid not accompanied by specified documentation and Bid security.
- C. City reserves the right to reject any Bid if it shows any omissions, alterations of form, additions not called for, conditions or qualifications, or irregularities of any kind.
- D. City reserves the right to reject any Bid that, in his sole discretion, is considered to be unreasonable as to the amount Bid for any lump sum or unit price item.
- E. A Bidder may withdraw his Bid before the time fixed for the opening of Bids by communicating his purpose in writing to the City. Upon receipt of such written notice, the unopened Bid will be returned to the Bidder.
- F. The withdrawal of a Bid does not prejudice the right of a Bidder to file a new Bid, so long as the new Bid is submitted in conformance with the Information for and Instructions to Bidders prior to the closing time indicated for Bids in the Advertisement for Proposals.
- G. No Bidder may withdraw his Bid for forty-five (45) days after the time established for receiving Bids or before the Award and execution of the Contract unless the Award is delayed for a period exceeding forty-five (45) calendar days. The Award of the Contract to one party does not constitute a waiver of this condition.
- H. In evaluating Bids, City will consider the qualifications of Bidders; whether or not the Bids comply with the prescribed requirements; the alternatives, if any; the time or times for completion as stated in the Bid Form; and the lump sum and unit prices, if requested in the Bid Form.
- I. City may consider the qualifications and experience of Subcontractors and other persons and organizations (including those who are to furnish the principal items of material or equipment) proposed for those portions of the work for which the identity of Subcontractors and other persons and organizations must be submitted.
- J. City may conduct such investigation deemed necessary to assist in the evaluation of any Bid and to establish the responsibility, qualifications and financial ability of the Bidders, proposed Subcontractors and other persons and organizations to do the work in accordance with the Contract Documents. City reserves the right to reject the Bid of any Bidder who does not pass any such evaluation to City's satisfaction.

- K. Modification of a Bid already received will be considered only if the modification is received prior to the time established for receiving Bids. Modifications shall be made in writing, executed, and submitted in the same form and manner as the original Bid. The communication should not reveal the Bid Price, but should provide the addition or subtraction or other modifications so that the final price or terms will not be shown until the sealed Bids are opened.

CONTRACT

THIS CONTRACT, made and entered into this ____ day of _____, 2013 by and between the City of Sedona, Arizona, hereinafter called the "Owner", and _____ Herein after called the "Contractor".

WITNESSETH:

WHEREAS, the City has caused Contract Documents to be prepared for the construction of the **Harmony-Windsong Phase IV Drainage Project**, City of Sedona, Arizona, as described therein; and

WHEREAS, the Contractor has offered to perform the proposed work in accordance with the terms of the Contract; and

WHEREAS, the Contractor, as will appear by reference to the minutes of the proceedings of the City Council was duly awarded the work.

NOW, THEREFORE, the parties hereto hereby stipulate, covenant and agree as follows:

1. The Contractor promises and agrees to and with the City that it shall perform everything required to be performed and shall provide and furnish all the labor, materials, necessary tools, expendable equipment, and all utility and transportation services required to perform and complete in a workmanlike manner all of the work required in connection with construction of the **Harmony-Windsong Phase IV Drainage Project** all in strict accordance with the Specifications and Drawings, including any and all Addenda, and in strict compliance with the Contractor's Proposal and all other Contract Documents, which are a part of the Contract; and the Contractor shall do everything required by this Contract and the other documents constituting a part thereof.
2. The Contractor agrees to perform all of the work described above in accordance with the Contract Documents and comply with the terms therein for the initial estimated Contract price of _____, subject to increase or decrease in accordance with the Contract Documents, and the Bid Schedule set forth therein; and the City agrees to pay the Contract Prices in accordance with the Bid Schedule for the performance of the work described herein in accordance with the Contract Documents.
3. The Contractor and the City agree that the terms, conditions, and covenants of the Contract are set forth in the Contract Documents and the Plans and Technical Specifications, and the Drawings numbered 1 through 24, all defined as the Contract Documents, and by this reference made a part hereof as if fully set forth herein.
4. The Contractor and the City agree that each will be bound by all terms and conditions of all of the Plans and Technical Specifications, and Contract Documents, as if the same

were fully set forth herein, and hereby incorporate all of the foregoing into this Agreement.

5. The Contractor shall abide by all the laws of the United States of America, State of Arizona, Coconino/Yavapai Counties, and the City of Sedona.
6. The Contractor shall carry Workmen's Compensation Insurance and require all Subcontractors to carry Workmen's Compensation Insurance as required by the Law of the State of Arizona, and all other insurance as set forth in the General Conditions.
7. Work under this Contract shall commence on the date specified in the written Notice to Proceed from the City to the Contractor. Upon receipt of said Notice, the Contractor shall diligently and continuously prosecute and complete all work under this Contract within the time specified on page A-2.
8. The Contract Document consist of the following component parts, all of which are a part of this Contract whether herein set out verbatim, or attached hereto:

Advertisement for Bids
Information for and Instructions to Bidders
Bid Proposal and Bid Guaranty Bond
Contract (this document)
Change Orders
Addenda
Performance Bond, Labor and Material Payment Bond
Special Conditions
General Conditions
Technical Specifications
Notice of Award
Notice to Proceed
Plans and Drawings
Design Reports
Standard Specifications
Insurance Certificates

The above named documents are essential parts of the Contract, and a requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work. In case of discrepancy, the order of precedence is as follows:

1. Change Orders
2. Contract (this document), including addenda
3. Payment and Performance Bonds
4. Advertisement for Bids
5. Information for and Instructions to Bidders

6. Notice of Award
7. Notice to Proceed
8. Special Conditions
9. Bid Proposal
10. Technical Specifications
11. Plans and Drawings
12. General Conditions
13. Bid Guaranty Bond
14. Standard Specifications

In the event there is a conflict between any of the above listed documents, the provision of the document with the lower numerical value shall govern those documents with a higher numerical value. Within a category, the last in time is first in precedence.

The Contractor shall not take advantage of any apparent error or omission in the Plans or Specifications. In the event the Contractor discovers such an error or omission, he shall immediately notify the Owner. The City will then make such corrections and interpretations as may be deemed necessary for fulfilling the intent of the Plans and Specifications.

9. As part of the inducement for City to enter into this Agreement, Contractor makes the following representations:
 - A. Contractor has familiarized himself with the nature and extent of the Contract Documents, work, locality, and with all local conditions and federal, state and local laws, ordinances, rules and regulations that in any manner may affect cost, progress, or performance of the work.
 - B. Contractor has studied carefully all reports of investigations and tests of subsurface and latent physical conditions at the site or those reports that otherwise may affect cost, progress or performance of the work, which were utilized by Design Engineer in the preparation of the Drawings and Specifications and which have been identified in the Contract Documents.
 - C. Contractor has made or caused to be made examinations, investigations and tests, and studies of such reports and related data as he deems necessary for the performance of the work at the Contract Price, within the Contract Time and in accordance with the other terms and conditions of the Contract Documents; and no additional examinations, investigations, tests, reports or similar data are or will be required by Contractor for such purposes.
 - D. Contractor has correlated the results of all such observations, examinations, investigations, tests, reports and data with the terms and conditions of the Contract Documents.

- E. **Contractor has given the City Engineer written notice of all conflicts, errors or discrepancies that he has discovered in the Contract Documents** and the written resolution thereof by City Engineer is acceptable to Contractor.
 - F. Contractor has attended mandatory pre-bid meetings and walk-throughs.
- 10.
- A. No assignment by a party hereto of any rights under or interest in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation, monies that may become due and monies that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.
 - B. City and Contractor each binds itself, its partners, successors, assigns and legal representatives to the other party hereto, and its partners, successors, assigns and legal representatives in respect to all covenants, agreements and obligations contained in the Contract Documents.
 - C. Pursuant to Arizona Revised Statutes Section 38-511, the provisions of which are incorporated by reference as if fully set forth herein, all parties are hereby given notice that this Agreement is subject to cancellation by the City if any person significantly involved in initiating, negotiating, securing, drafting, or creating the Contract or Contract Documents on behalf of the City is, at any time while the Contract or Contract Document or any extension thereof is in effect, an employee or agent of any other party to the Contract or Contract Documents in any capacity or a consultant to any other party to the Contract or Contract Documents with respect to the subject matter of the Contract or Contract Documents.
11. During the performance of this Agreement, Contractor may also be under contract with the City for performance of work on other projects. A breach in the performance of any of Contractor's obligations under this Agreement shall constitute a breach of Contractor's obligations under any other agreement with the City and the breach by Contractor under other agreement with the City shall also constitute a breach of Contractor's obligations under this Agreement. The City may offset any amounts owed by Contractor under any such other agreement from any amounts owed to Contractor under this Agreement.
12. The Contract Documents constitute the entire Agreement between the parties.

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, this Agreement in triplicate (3) each of which shall be deemed an original on the date first above written.

CITY:

CITY OF SEDONA, ARIZONA

BY: _____

Name: _____
(please type)

TITLE: _____

(SEAL)

ATTEST:

Name: _____
(please type)

CONTRACTOR:

BY: _____

Name: _____
(please type)

TITLE: _____

APPROVED AS TO FORM:

BY: _____

DATE: _____

(SEAL)

ATTEST:

Name: _____
(please type)

STATUTORY BID BOND

**PURSUANT TO TITLE 34, CHAPTER 2, ARTICLE 1
OF THE ARIZONA REVISED STATUTES**

(This bond must not be less than ten percent (10%) of the bid amount)

KNOW ALL MEN BY THESE PRESENTS:

That we, the undersigned _____, (hereinafter "Principal"), as Principal, and _____, a corporation organized and existing under the laws of the State of _____, with its principal offices in the City of _____, (hereinafter "Surety"), as Surety, are held and firmly bound unto the City of Sedona, the State of Arizona, (hereinafter "Obligee"), in the amount of _____ (Dollars) (\$ _____), for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for

Harmony-Windsong Phase IV Drainage Project

NOW, THEREFORE, if the Obligee accepts the proposal of the Principal and the Principal enters into a contract with the Obligee in accordance with the terms of the proposal and gives the bonds and certificates of insurance as specified in the Contract Documents with good and sufficient surety for the faithful performance of the contract and for the prompt payment of labor and materials furnished in the prosecution of the contract, or in the event of the failure of the Principal to enter into the contract and give the bonds and certificates of insurance, if the Principal pays to the Obligee the difference not to exceed the penalty of the bond between the amount specified in the proposal and such larger amount for which the Obligee may in good faith contract with another party to perform the work covered by the proposal then this obligation is void. Otherwise, it remains in full force and effect provided, however, that this bond is executed pursuant to the provisions of Section 34-201, Arizona Revised Statutes, and all liabilities on this bond shall be determined in accordance with the provisions of the section to the extent as if it were copied at length herein.

Witness our hands this _____ day of _____, 2013.

PRINCIPAL

Seal

By: _____

Title: _____

AGENCY OF RECORD

AGENCY ADDRESS

SURETY

Seal

(Attach Power of Attorney form)

STATUTORY BID BOND
(Check to accompany bid)

(Note: The following form shall be used when a check accompanies bid)

Accompanying this proposal is a Cashier's check payable to the order of the City of Sedona hereinafter referred to as "City," for the **Harmony-Windsong Phase IV Drainage Project** in the amount of _____ Dollars (\$ _____), this amount being ten percent (10%) of the total amount of the Bid. The proceeds of this check shall become the property of said City provided this proposal shall be accepted by said City through action of its legally constituted contracting authorities and the undersigned shall fail to execute a contract and furnish the required Performance and Payment Bonds and proof of insurance coverage within the stipulated time; otherwise, the check shall be returned to the undersigned. The proceeds of this check shall also become the property of the City if the undersigned shall withdraw his bid within the period of forty-five (45) days after the date set for the opening thereof, unless otherwise required by law, and notwithstanding the award of the Contract to another Bidder.

Bidder

(NOTE: If the Bidder desires to use a bond instead of a check, the Bid Bond Form on the previous two pages shall be executed -- the sum of this bond shall not be less than ten percent (10%) of the total amount of this Bid.)

STATUTORY PERFORMANCE BOND
PURSUANT TO TITLE 34, CHAPTER 2, ARTICLE 2,
OF THE ARIZONA REVISED STATUTES

(This Bond must be 100% of the Contract amount)

KNOW ALL MEN BY THESE PRESENTS:

That, _____ (hereinafter "Principal"), as Principal, and _____, a corporation organized and existing under the laws of the State of _____ with its principal office in the City of _____, (hereinafter "Surety"), as Surety, are held and firmly bound unto the City of Sedona, State of Arizona, (hereinafter "Obligee") in the amount of _____ (Dollars) (\$ _____) for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written Contract with the _____, dated the ____ day of _____, 2013 to

_____ which contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the Principal faithfully performs and fulfills all of the undertakings, covenants, terms conditions and agreements of the Contract during the original term of the Contract and any extension of the Contract, with or without notice to the Surety, and during the life of any guaranty required under the Contract, and also performs and fulfills all of the undertakings, covenants, terms conditions and agreements of all duly authorized modifications of the Contract that may hereafter be made, notice of which modifications to the Surety being hereby waived, the above obligation is void. Otherwise it remains in full force and effect.

PROVIDED, HOWEVER, that this bond is executed pursuant to the provisions of Title 34, Chapter 2, Article 2, Arizona Revised Statutes, and all liabilities on this bond shall be determined in accordance with the provisions of Title 34, Chapter 2, Article 2, Arizona Revised Statutes, to the extent as if it were copied at length in this agreement.

The prevailing party in a suit on this bond shall recover as part of the judgment reasonable attorney fees that may be fixed by a judge of the Court.

Witness our hands this _____ day of _____, 2013.

PRINCIPAL Seal

By: _____

Title: _____

AGENCY OF RECORD

AGENCY ADDRESS

SURETY Seal

By: _____

(Attach Power of Attorney form)

STATUTORY PAYMENT BOND
PURSUANT TO
TITLE 34, CHAPTER 2, ARTICLE 2,
OF THE ARIZONA REVISED STATUTES

(This Bond must be 100% of the Contract amount)

KNOW ALL MEN BY THESE PRESENTS:

That, _____ (hereinafter "Principal"), as Principal, and _____, a corporation organized and existing under the laws of the State of _____ with its principal office in the City of _____, (hereinafter "Surety"), as Surety, are held and firmly bound unto the City of Sedona, State of Arizona (hereinafter "Obligee") in the amount of _____ (Dollars) (\$_____) for the payment whereof, the said Principal and Surety bind themselves, and their heirs, administrators, executors, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has entered into a certain written contract with the Obligee dated the _____ day of _____, 2013, _____

which contract is hereby referred to and made a part hereof as fully and to the same extent as if copied at length herein.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION IS SUCH, that if the Principal promptly pays all monies due to all persons supplying labor or materials to the Principal or the Principal's subcontractors in the prosecution of the work provided for in contract, this obligation is void. Otherwise it remains in full force and effect.

PROVIDED HOWEVER, that this bond is executed pursuant to the provisions of Title 34, Chapter 2, Article 2, of the Arizona Revised Statutes, and all liabilities on this bond shall be determined in accordance with the provisions, conditions and limitations of Title 34, Chapter 2, Article 2, Arizona Revised Statutes, to the same extent as if it were copied at length in this agreement.

The prevailing party in a suit on this bond shall recover as part of the judgment reasonable attorney fees that may be fixed by a judge of the Court.

Witness our hands this _____ day of _____, 2013.

PRINCIPAL

Seal

By: _____

Title: _____

AGENCY OF RECORD

AGENCY ADDRESS

SURETY

Seal

By: _____

(Attach Power of Attorney form)

DO NOT DETACH AND SUBMIT SEPARATE FROM OTHER CONTRACT DOCUMENTS

BID PROPOSAL

City of Sedona:

The undersigned Bidder, having examined the specifications, drawings and all other documents contained in the Contract Documents, attended all mandatory pre-bid meetings, and having examined the site where the work is being performed, and having familiarized himself with any local conditions affecting the work and having knowledge of the cost of work at the place where the work is to be done, hereby proposes to execute and perform the formal Contract set forth in these Contract Documents, of which this Proposal forms a part, and will do the work therein described on the terms and conditions therein set forth; and furnish all required labor, materials, tools, equipment, transportation and services for said work, and pay all taxes and other incidental costs, all in strict conformity with the drawings and specifications forming a part of the Contract Documents for the Unit Prices entered based on the Bidding Schedule included herein, said prices to only be amended or altered in accordance with the Contract Documents.

It is understood that any listed quantities of work to be done at unit prices are **approximate** only, and are intended to serve as a guide in evaluating bids.

It is further agreed that any quantities of work to be done at unit prices and material to be furnished may be increased or decreased as may be considered necessary, in the opinion of the City, to complete the work fully as planned and contemplated and that all quantities of work, whether increased or decreased, are to be performed at the unit prices set forth in the Bid Schedule, except as otherwise provided for in the Contract Documents.

It is further agreed that payments may be increased to cover additional work ordered by the City, but not shown on the Plans or required by the Specifications in accordance with General Condition No. 47. Similarly, payments may decrease if work is deleted or changed.

By submitting a bid, the Bidder acknowledges the understanding that the bid process is solely intended to serve the public interest in achieving the highest quality of services and goods at the lowest price, and that no right, interest, or expectation shall vest or inure to the benefit of Bidders as a result of any reliance or participation in the process.

In submitting this Proposal, it is understood that the right is reserved by the City to reject any or all Proposals and waive informalities or irregularities in Proposals. The City also reserves the right to delay the award of a contract for a period not to exceed forty-five (45) days from the date of the opening of bids.

The undersigned Bidder further agrees, if awarded the contract for the work included in this Proposal, to begin and to complete and deliver the work contemplated in accordance with all the conditions set forth in the Contract Documents.

The undersigned Bidder has carefully checked the figures inserted by him and understands that they are the Bidder's sole responsibility, and the City will not be responsible for any errors or omissions on the part of the undersigned Bidder in preparing this Proposal although City may check and correct mathematical accuracy in evaluation of the bids.

The undersigned Bidder certifies that this Proposal is genuine, not collusive, or made in the interest or behalf of any person not named as provided in the Information for and Instructions to Bidders, and that the undersigned has not, directly, or indirectly, induced or solicited any other Bidder, or induced any other person, firm, or corporation to refrain from submitting a proposal, and the undersigned has not in any manner sought by collusion to secure for himself an advantage over any other Bidder.

Attached is a certified check without endorsement and with conditions payable to the City of Sedona in the sum of ten percent (10%) of the total bid drawn on a bank which is a member of Federal Reserve System or which is a member of the Federal Deposit Insurance Corporation, or a cashier's check for ten percent (10%) of the total bid or a Bid Bond written by an approved surety company for ten percent (10%) of the total bid.

The undersigned submits a bid bond pursuant to Section 34-201, Arizona Revised Statutes, payable to the City, equal to ten percent (10%) of the total amount of this proposal, and agrees that said bid bond shall be given as a guarantee that the Bidder will enter into the Contract within the time herein stated if the award is made to him by the City. In case of the Bidder's refusal or failure to do so within ten (10) days of Notice of the Award of Contract, or within five (5) days after receiving notice from the City of the rejection of any objections to the Notice of Award, the bond will be forfeited.

The Bidder grants the City the right to hold the lowest three (3) Proposals received, together with the accompanying bid securities, for a period of forty-five (45) days after the date of opening of said Proposals.

The undersigned Bidder further grants the City the right to award this Contract on the basis of any possible combinations of Base Bid and add/deduct alternate(s) (if any) that best suits the City's needs.

Bidder agrees that the City has determined that a reasonable time for the **Harmony-Windsong Phase IV Drainage Project** is the contract time stated in the Advertisement for Bids and issued addendum. The Bidder agrees that this proposal is submitted on this basis, subject to provisions contained in the Contract Documents relating to extensions of time, and agrees to plan and prosecute the work with such diligence that the work shall be completed within the time specified.

Bidder agrees that the bid includes the following items which have been completed in full by the Bidder:

- (a) Bid or Proposal
- (b) Bid Schedule
- (c) Bid Guaranty Bond
- (d) Certification of the Bidder's experience and qualifications and statement of Bidder's Qualifications
- (e) List of all proposed Subcontractors
- (f) Schedule of manufacturers and suppliers, major equipment and material items
- (g) Non-collusion Affidavit
- (h) Certificate of Insurability
- (i) Signed Addenda

Bidder agrees that the City assumes no responsibility for any understanding or representation made by any of its Council members, officers or agents during or prior to the bidding and execution of the Contract, unless (1) such understanding or representations are expressly stated in the Contract or Addenda thereto, or (2) the Contract expressly provides that responsibility therefore is assumed by the City, or (3) said understanding or representation is contained in the information supplied to Bidders by the City or the City Engineer, or as information distributed pursuant to the Information for and Instructions to Bidders. The Bidder further understands that only the Mayor and Council of the City through action taken at a properly noticed meeting, can waive any term or condition or requirement of this Contract or of the bid.

Bidder agrees that all terms set forth in the Information for and Instructions to Bidders as well as all other Contract Documents shall be binding upon the Bidder if a Notice of Award is issued in favor of said Bidder by the City.

Bidder agrees that all major equipment and suppliers shall be set forth herein on the attached "Schedule of Manufacturers and Suppliers, Major Equipment and Material Items",

Bidder understands that this project is to be constructed in compliance with all City, State and Federal laws, rules and regulations, which are applicable to the project and the Contractor and all work performed hereunder.

In making this proposal, the undersigned incorporates and acknowledges all definitions set forth in the Contract Documents.

The undersigned hereby submits this proposal and the accompanying Bid Schedule as its proposal to construct the improvements described in the Contract Documents.

The name and location of the place of business of each Subcontractor who will perform work or labor or render service to the general Contractor in or about the construction of the work or improvements in an amount in excess of one and one-half percent (1.5%) of the general Contractor's total Bid, and the portion of the work which will be done by each Subcontractor is set forth in the Proposed Subcontractor list attached hereto.

Bidder has received all Addenda before submission of Bid, and has examined the same and has included them in the Contract Documents prior to submitting the Bid and has submitted the Bid based upon them.

The Bonding company which will supply the required Performance and Payment bond is:

Bid Schedule

**City of Sedona – Harmony-Windsong Phase IV Drainage Project.
Project # COS 2012-110**

ITEM NO.	ITEM DESCRIPTION	QTY	UNIT	UNIT PRICE	EXTENDED TOTAL
1	4" DRAIN MODIFICATIONS	6	EA		
2	24" CMP STORM DRAIN	37	LF		
3	30" CMP STORM DRAIN	169	LF		
4	36" CMP STORM DRAIN	13	LF		
5	DUAL 60" CMP STORM DRAIN	567	LF		
6	DUAL 72" CMP STORM DRAIN	718	LF		
7	48" DUAL MANHOLE	4	EA		
8	72" TO 60" PLATE REDUCER	2	EA		
9	CONCRETE COLLAR AT CONNECTION TO EXISTING PIPE	1	EA		
10	24" CMP CATCH BASIN	1	EA		
11	SLURRY BEDDING AND BACKFILL WITH FRENCH DRAIN	83	LF		
12	PROTECT TREE IN PLACE	21	EA		
13	CONCRETE INLET STRUCTURE WITH TRASH RACKS	1	EA		
14	CONCRETE INLET STRUCTURE	1	EA		
15	CONCRETE HEADWALL STRUCTURE	1	EA		
16	SWALE GRADING	1605	LF		
17	D50=4" RIPRAP	241	CY		
18	PROTECT FENCE IN PLACE	1	LS		
19	PROTECT RETAINING WALL IN PLACE	1	LS		
20	PROTECT BUILDING WALL AND FOOTING IN PLACE	1	LS		
21	RELOCATE EXISTING ELECTRICAL OUTLET	1	LS		
22	PIPE GATE	6	EA		
23	STEEL HANDRAIL	103	LF		
24	6" AGGREGATE BASE COURSE	11	CY		
25	4" ASPHALTIC SURFACE COURSE (3/4 INCH)	64	SY		
26	REPLACE EXISTING SURVEY MONUMENTS	2	EA		
27	CONSTRUCTION COORDINATION WITH WATER AND POWER COMPANIES	1	LS		
28	REMOVE BERMS AND REPLACE WITH TRAFFIC CONTROL AT ROAD XINGS	3	EA		
29	REMOVE EXIST CMP	68	LF		

30	REMOVE EXIST BOX CULVERT, CONCRETE HEADWALLS & HANDRAILS	1	EA		
31	REMOVE EXIST AC PAVEMENT	64	SY		
32	REMOVE EXIST TREE	16	EA		
33	REMOVE EXIST VEGETATION	1	LS		
34	REMOVE EXIST HEADWALL, HANDRAIL AND SHOTCRETE CHANNEL	1	LS		
35	REMOVE EXIST CONCRETE & ROCK HEADWALL AND CHANNEL	1	LS		
36	REMOVE EXIST CONCRETE ROCK/BLOCK WALL	1	LS		
37	REMOVE EXIST CONCRETE EROSION CONTROL	1	LS		
*38	SAWCUT, CURB & GUTTER, GRADING, CORE DRILL AND RIP RAP	1	LS		
39	STORMWATER POLLUTION PREVENTION	1	LS		
40	PROTECT PIPE AGAINST STORMWATER DAMAGE	1	LS		
41	MOBILIZATION	1	LS		
42	DEMOBILIZATION	1	LS		
43	TRAFFIC CONTROL	1	LS		
44	CLEAR AND GRUB	1	LS		
45	QA/QC TESTING AND CONFORMANCE	1	LS		
46	CONSTRUCTION STAKING	1	LS		
47	AS-BUILT PREPARATION	1	LS		

TOTAL BASE BID

ADDITIVE ALTERNATE NO. 1

ITEM NO.	ITEM DESCRIPTION	QTY	UNIT	UNIT PRICE	EXTENDED TOTAL
*38	SAWCUT, CURB & GUTTER, GRADING, CORE DRILL AND RIP RAP	1	LS		

CIP: COMPLETE IN PLACE

Owner reserves the right to vary the quantities shown at their discretion. The contractor will accept the quantities if no corrections are made at the conclusion of the pre-bid meeting. All facilities incidental to the item are included in the unit price estimate. Bid Prices submitted include all local, state and federal taxes.

UNIT PRICES SHALL BE USED WHEN EXTENSION OF UNIT PRICES AND TOTAL AMOUNT CONFLICT. WRITTEN UNIT PRICES SHALL BE USED WHEN WRITTEN AND NUMERICAL UNIT PRICES CONFLICT. BID PRICES SUBMITTED INCLUDE ALL LOCAL, STATE AND FEDERAL TAXES.

The City of Sedona reserves the right to reject all bids, or to award only the base bid, or to award a bid based upon the total of the Base Bid plus additive alternate(s) as selected for award from the additive alternate bid schedule, if additive alternate bid schedule is applicable.

The undersigned is licensed in accordance with the Laws of the State of Arizona:

License Number _____ **Class** _____

NOW: In compliance with the Notice Inviting Bids and all the provisions hereinbefore and after stipulated, the undersigned, with full cognizance thereof, hereby proposes to perform the Work for the prices set forth in the preceding Schedule(s) upon which award of contract is made.

Individual Contractor Name: _____
Address: _____

Partnership Name: _____
Business Address: _____
By: _____, Partner
Other Partners: _____

Corporation Name: _____
Business Address: _____
By: _____
_____, President
_____, Secretary

Organized under the Laws of the State of _____

Date: _____ Contractor: _____

(SEAL)

By: _____

The undersigned Bidder acknowledges receipt of the following addendum:

Addendum #	Dated	Initial
_____	_____	_____
_____	_____	_____

Signature of Bidder

PROPOSED SUBCONTRACTORS

The following information gives the name, business address, and portion of work (description of work to be done) for each Subcontractor that will be used in the work if the Bidder is awarded the Contract. No Subcontractor doing work in excess of one and one-half percent (1.5%) of the total amount of the bid and who is not listed shall be used without the written approval of the City, which shall not be unreasonably withheld. (Additional supporting data may be attached to this page. Each page shall be sequentially numbered and headed "Proposed Subcontractors" and shall be signed.) Substitutions of Subcontractors may be made by the Bidder as long as all Subcontractors used meet all requirements for all Subcontractors and all subcontract agreements meet all requirements set forth in the Contract Documents. The total value of subcontracted work shall not exceed fifty percent (50%) of the contract work as bid. The Bidder shall perform 50% or more of the contract work using Bidder's organization, unless stated otherwise in the specifications. The subcontractor shall have the license required for the work performed. The subcontractor will be required to have a current City of Sedona Business License for the duration of the contract.

Subcontractor Name	Business Address	Description of Work
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Signature of Bidder

SCHEDULE OF MANUFACTURERS AND SUPPLIERS; MAJOR EQUIPMENT AND MATERIAL ITEMS

The Bidder proposes that the named items of major equipment and materials required for work will be supplied by the manufacturers or suppliers set forth below as written in by the Bidder. Substitutions will be allowed in accordance with the Contract Documents:

Item

Manufacturer or Supplier

WORKMEN'S COMPENSATION INSURANCE
CERTIFICATE

I am aware of the provisions of Arizona Law, which require every employer to be insured against liability for workmen's compensation in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the Work of this Contract.

Date: _____

By: _____

NON-COLLUSION AFFIDAVIT

TO BE EXECUTED BY EACH AWARDEE OF A PRINCIPAL CONTRACT IN THE
STATE OF ARIZONA }
 } ss
COUNTY OF }

_____, being first duly sworn, deposes and says:

1. That he is _____ (sole owner, a partner, president, secretary, etc.)
of _____, the party
making the foregoing Bid.
2. That such Bid is not made in the interest of or on behalf of any undisclosed person,
partnership, company association, organization, or corporation.
3. That such Bid is genuine and not collusive or sham.
4. That said bidder has not directly induced or solicited any other Bidder to put in a false or
sham Bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any
Bidder or anyone else to put in a sham Bid, or that anyone shall refrain from bidding.
5. That said Bidder has not in any manner, directly or indirectly, sought by agreement,
communication, or conference with anyone to fix the Bid Price of said Bidder or of any other
Bidder, nor to fix any overhead, profit, or cost element of such Bid Price, nor of that of any
other Bidder, nor to secure any advantage against the public body awarding the Contract or
anyone interested in the proposed Contract.
6. That all statements contained in such Bid are true.
7. That said Bidder has not, directly or indirectly, submitted his Bid Price or any breakdown
thereof, nor the contents thereof, nor divulged information or data relative thereto, nor paid
and will not pay any fee in connection therewith to any corporation, partnership, company,
association, organization, bid depository, nor to any member or agent thereof, nor to any
other individual except to such person or persons as have a partnership or other financial
interest with said Bidder in his general business.

NON-COLLUSION AFFIDAVIT

(Continued)

Name of Business

By

Title

Subscribed and sworn to before me this _____ day of _____, 2013.

My Commission expires: _____

(Notary Public)

STATEMENT OF BIDDER'S QUALIFICATIONS

If bidder is a corporation, answer the following:

- (a) Date of incorporation; _____
- (b) State of incorporation; _____
- (c) President's name; _____
- (d) Vice President's name(s); _____
- (e) Secretary's or Clerk's name; _____
- (f) Treasurer's name; _____

If bidder is a partnership, answer the following:

- (a) Date of organization _____
- (b) Name and address of all partners. State whether it is a general or limited partnership: _____

If other than a corporation or partnership, describe the organization and name principals:

Major Types of Work Done by Company: _____

Principal Office: _____

Telephone Number: _____

Contractor's Bank and Local Contact: _____

EXPERIENCE QUESTIONNAIRE

1. How many years has your organization been in business as a contractor under your present business name?

2. How many years of experience in the proposed type and size of construction work has your organization had:

(a) As a general contractor? _____

(b) As a subcontractor? _____

3. Are you licensed as a General Engineering contractor, or any other title?

If "yes", in what city, county and state? _____

What class license and number? _____

4. List the most recent projects your organization has had in construction of work similar in type and size to the work proposed herein:

Project Name	Original Contract Amount	Final Contract Amount	Class of Work	When Completed	Name, Address, Phone of Owner

5. Has any construction contract to which you have been a party been terminated by the owner; have you ever terminated work on a project prior to its completion for any reason; has any surety which issued a performance bond on your behalf ever completed the work in its own name or financed such completion on your behalf; has any surety extended any monies in

connection with the contract for which they furnished a bond on your behalf? If the answer to any portion of this question is “yes”, please furnish details of all such occurrences including the name of the owner, architect or engineer, and surety, name and date of project.

- YES NO

6. Has any officer or partner of your organization ever been an officer or partner of another organization that had any construction contract terminated by the owner; terminated work on a project prior to its completion for any reason; had any surety which issued a performance bond complete the work in its own name or finance such completion; or had any surety expend any monies in connection with the contract for which they furnished a bond? If the answer to any portion of this question is “yes”, please furnish details of all such occurrences including name of owner, architect or engineer, and surety, name and date of project.

- YES NO

7. What is the construction experience of the principal individuals of your organization?

Individual's Name	Yrs Exp with this Company	Present Position or Office	Years of Construction Experience	Magnitude & Type of Work	In What Capacity

8. How many **drainage** projects, with a total project cost greater than \$800,000, has your company completed in the past 10-years? _____ (This does not include an individual’s experience, separate from the company’s experience; an individual’s experience should be listed in their resume, if provided. **List a minimum of 4 projects.**)

NO.	Project Name	Owner	Contact	Contact Phone	Amount
1					
2					
3					
4					

9. How many **drainage** projects, with total pipe length greater than 500 lineal feet and pipe diameter greater than 5 feet, has your company completed in the past 10-years? _____ (This does not include an individual's experience, separate from the company's experience; an individual's experience should be listed in their resume, if provided. **List a minimum of 4 projects.**)

NO.	Project Name	Owner	Contact	Contact Phone	Amount
1					
2					
3					
4					

10. How many **drainage** projects, located in public easements and on private property, has your company completed in the past 10-years? _____ (This does not include an individual's experience, separate from the company's experience; an individual's experience should be listed in their resume, if provided. **List a minimum of 4 projects.**)

NO.	Project Name	Owner	Contact	Contact Phone	Amount
1					
2					
3					
4					

11. How many **municipal** projects, has your company completed in the past 10-years? _____ (This does not include an individual's experience, separate from the company's experience; an individual's experience should be listed in their resume, if provided. **List a minimum of 6 projects.**)

NO.	Project Name	Owner	Contact	Contact Phone	Amount
1					
2					
3					
4					
5					
6					

BIDDER'S AFFIDAVIT

The undersigned, as _____
 (President, Officer of Corporation, Member of Firm) of the prospective bidder, hereby certifies that the foregoing information is, to the best of his/her knowledge and belief, true and accurate as of the _____ day of _____, 2013. Contractor, by his signature hereon, authorized the obtaining of reference information and hereby releases the party providing such information and the City of Sedona from any and all liability to Contractor as a result of such reference information being provided. Contractor further waives any right to receive copies if information so provided.

Corporate Seal
 (If Corporation)

Contractor

BY: _____

Position (must be President, Officer of Corporation or
 member of Partnership as applicable)

NOTARY

STATE OF _____)
)ss
 COUNTY OF _____)

The foregoing instrument was acknowledged before me this _____ day of _____, 2013,
 by _____
 as _____ For the _____.

WITNESS my hand and official seal.

My commission expires: _____.

 Notary Public

CONTRACTOR'S FINANCIAL STATEMENT

1. Submit the most recent financial statements, including the Balance Sheet, Income Statement, sources and uses of funds, notes to the financial statement, and the auditor's opinion, that cover the most recent twelve (12) month period. These statements must have been audited by a Certified Public Accountant. However, if the prospective bidder has previously performed satisfactory work according to the City of Sedona's Engineering Department, unaudited financial statements may be allowed.

Financial statements must be submitted on an accrual basis, in a form which clearly indicates the bidder's assets, liabilities, and net worth.

2. Also submit the most recent unaudited financial statements subsequent to number 1 above.

(Financial statements shall be required of and submitted by the apparent low bidder within two (2) days after the bid opening)

CERTIFICATE OF INSURABILITY

I hereby certify that as Bidder to the City of Sedona, Arizona, _____ project, I am fully aware of the requirements of the City insurance requirements for contractors and that by submitting this bid proposal, assure the City that I am able to produce the required minimum insurance coverage should I be selected to be the successful Bidder.

Should I be selected to be the successful Bidder and then become unable to produce the insurance coverage within ten (10) days of receipt of the Notice of Award, I understand that my bid will be rejected and that I will forfeit my bid bond.

BY: _____ Date _____

Title: _____

SPECIAL CONDITIONS

General

Work shall be in accordance with Uniform Standard Specifications for Public Works Construction, distributed by Maricopa Association of Governments, 2012 edition (MAG), except to the extent that these specifications specify other procedures, processes, forms, materials, details, or other direction regarding the work, and as required to comply with local ordinances and regulations.

Whenever the term County is used it shall be held to mean the City of Sedona. Whenever the term County Engineer is used it shall be held to refer to the City Engineer.

Electrical work shall be subject to inspection by the City of Sedona Building Safety Division and compliance with its requirements.

General Provisions

The General Conditions and Specifications shall be considered as immediately following the Special Conditions in Order of Precedence and are part of the Contract documents.

1. Cleanup and Dust Control

In addition to the requirements of the General Conditions, Section 18, Item E, the following is required:

- a) Dust control shall be maintained at all times on the project. Spray nozzles shall be used as necessary on equipment to reduce dust. Mist shall be visible when standing adjacent to the equipment.
- b) A Dust Control Plan shall be submitted prior to start of construction.
- c) Cleanup and Dust Control shall be in compliance with MAG Section 104.1.3 and 104.1.4

2. Work Hours/Schedule

The regular working hours for this contract shall be from 7:00 AM to 5:30 PM Monday through Friday. Work will not be allowed on weekends, or City of Sedona holidays regardless of the weekday. Work hours shall include clean up time. When the City is operating on a four-day workweek, only work not requiring immediate inspection, by the City, may be performed during the Friday work hours. Other than these work hours, all other parts of General Conditions Section 9 "Schedule of Construction" shall remain intact. The contractor shall provide the City Engineer with a written work schedule projecting out at least two workweeks. Permission to work non-regular work hours shall be subject to approval by the City Engineer or designee and the provisions of General Conditions, Section 39.

The schedule, required by Section 9 and 31.G.3 of the General Conditions, is amended as follows. The schedule shall be updated at each progress meeting, which will occur weekly. This schedule update shall include a detailed two week look ahead, it shall indicate work requiring inspection. The

schedule shall be submitted in an electronic format compatible with Microsoft Project Standard 2007, and hard copy format.

The City of Sedona has the following holiday schedule:

New Year's Day, January 1st

Martin Luther King/Civil Rights Day, 3rd Monday of January

President's Day, 3rd Monday in February

Memorial Day, Last Monday in May

Independence Day, July 4th

Labor Day, 1st Monday in September

Veteran's Day, November 11th

Thanksgiving Day, 4th Thursday in November AND the Friday after Thanksgiving Day

Christmas Day, December 25th.

3. Storage of Equipment and Material

In addition to the requirements of Section 18 of the General Conditions, the following shall apply. Equipment and material shall not be stored in the right-of-way and/or street easement during non-work hours without permission of the City Engineer. Such permission shall be subject to a finding that it is impractical to move the equipment or material because of size or that permission has been granted to close the right-of-way to all traffic, including local traffic. Lack of construction yard or other staging area shall not be considered as reason to grant permission. Such permission, if granted, shall be subject to conditions determined at the sole discretion of the City Engineer.

4. Project Sign

The Contractor shall install one project sign. The sign shall identify the project and the City of Sedona as the Project owner, and provide a contact person for both the City and the Contractor. The sign shall be securely mounted and placed so that the bottom of the sign does not impede vehicular or pedestrian traffic flow or otherwise become a safety concern. The Contractor shall provide the project sign for the duration of the on-site work on the project. Payment of more than 75% of mobilization shall not be payable until the sign is in place. Failure to maintain the sign erect and in legible condition may result in up to a deduction from the contract payment equal to 0.25% for each time a written notice regarding improper sign maintenance is issued by the Engineer.

The required sign shall be mounted at a location within the project limits visible to the public as it enters or moves adjacent to the project area. The Contractor shall locate the sign in a location mutually agreeable to the Project Engineer and the Contractor within the project area. The sign shall be constructed per the Project Construction Sign Detail included at the end of the Special Conditions section. Compensation for this item shall be considered as included in the price for bid item "Mobilization". The Contractor shall present the sign design as a project submittal. The Percent Complete Bar shall be filled in as the project progresses in accordance with Article 6 of the General Conditions.

5. Public Convenience and Safety

Within the City of Sedona public convenience and safety are matters to which the Contractor is

expected to devote attention to at all times during the project. The Contractor shall minimize disruption of normal vehicular and pedestrian traffic patterns and routes, the disruption of normal property services such as, but not limited to, mail delivery and garbage pick-up. Failure in making these provisions shall subject the Contractor to deductions from payments due under the contract as determined by the City Engineer.

6. Traffic Control

Care shall be taken not to block access into or out of driveways adjacent to the work. Full access shall be available in both directions at all times unless a traffic restriction is approved by the City Engineer and provided proper traffic control and advance warning signage is in place. Pedestrian traffic must be maintained at all times, on at least one side of the road. The traffic control plan is intended to be a guide; Contractor shall submit any proposed revisions for approval by the City Engineer.

7. Start of Construction

Construction shall not begin until the Contractor has at a minimum provided the following:

- A traffic control plan that has been approved by the City Engineer
- The Storm Water Pollution Control Plan provisions are in place per the SWPPP in the Civil Plans
- The contractor shall have a City of Sedona NOI for storm water pollution prevention
- A minimum of 2 working days written notice delivered to property owners, residents, and HOA President within and 300 feet adjacent to the work area. The notice shall state the Contractor's contact information, brief description of the project, and the project's anticipated start date
- Survey stakes and marks have been placed in the field to accommodate at least two weeks construction work and survey notes have been provided to the City as per the project specifications
- The Project Sign has been posted
- Equipment Rate Submittal as required by Section 47.D.3 of the General Conditions
- A complete project schedule as required by the General Conditions and Section 2 of the Special Conditions

This provision shall not require that the City of Sedona refrain from issuing a notice to proceed or require an extension of time to accommodate Contractor compliance with it.

8. Project Control

- The horizontal and vertical control for this project is shown on the civil drawings
- The benchmarks for this project are indicated on the civil drawings
- The Contractor shall be responsible for all survey on the project **see Section 15 of the General Conditions.**

9. Storm Water Pollution Prevention Plan

In addition to the requirements of Section 16 of the General Conditions, the following shall apply. The Storm Water Pollution Prevention Plan shall include measures to prevent silt and debris generated by this project from migrating beyond the construction site boundaries. Measures such as trapping and removing debris and dirt generated, or other measures acceptable to the City Engineer, shall be taken. The Contractor shall also comply with the City of Sedona General Storm Water Pollution Prevention Guidelines.

Technical Specifications, Section 2.2, Items of Work, Item 39, Stormwater Pollution Prevention Plan, should be revised to read, "This work consists of preparing and implementing a stormwater pollution prevention plan (SWPPP) in accordance with the Sedona City Code, Chapter 14. A SWPPP has been provided as part of the plans. This SWPPP is a suggested plan only. The contractor is hereby required to submit and endorse the provided plan, or submit their own version, for acceptance by the City."

10. Mobilization

Payment for mobilization shall be in accordance with Section 901 of ADOT Standard Specifications for Road and Bridge Construction 2000 edition, except as modified by this section and General Conditions Sections 18, 33, and 66. The maximum percent of the contract allowed for mobilization during the life of the contract is 10%. Retention shall apply to mobilization payments. The first payment for mobilization shall be contingent on providing:

- A traffic control plan that has been approved by the City Engineer
- The Storm Water Pollution Control Plan provisions are in place per the SWPPP in the Civil Plans
- The Contractor shall have a City of Sedona NOI for stormwater pollution prevention
- The Project Sign has been posted
- A complete project schedule as required by the General Conditions and Section 2 of the Special Conditions.

11. Submittals

In addition to the submittals called for in the Technical Specifications and General Conditions, additional submittals are required for the following items: shoring plan, sewer pipe, manholes, concrete mix design, asphalt mix design, metal fabrications, project sign, and equipment rental rates for all equipment to be utilized for the project (as required by Section 47.D.3 of the General Conditions).

12. Various items of Work

The Contractor shall provide the City reasonable and timely notice in writing prior to exceeding quantities established in the Bid Schedule. Failure to notify the City in a timely manner prior to exceeding the contractual quantities identified in the Bid Schedule shall be sufficient reason for the City to deny such claim.

Roadway specifications shall conform to City Code Sections 12.05.110 and 12.05.120.

Clearing and grubbing shall be subject to MAG specification Section 201 and full compensation shall be considered as provided in bid item "Mobilization". No separate payment shall be made for trees.

It is the contractor's responsibility to comply with the ADA, specifically the requirements of ADAAG, even if the project plans show an item to not meet the requirements of ADAAG.

The City of Sedona reserves the right to request a schedule of values for any of the lump sum bid items.

All guarantees shall be per Section 51 of the General Conditions.

If it is determined that import or export of earthen material in excess of 40 cubic yards (combined total) is needed, a Haul Plan shall be provided to the City Engineer. At least 5 city working days prior to the placement of fill or excavated material from a grading project within the city on other properties located within the city, the City Public Works Department shall be notified in writing of the intent to place the material on other property. This requirement shall apply when the total amount of material placed on other properties within the city exceeds 40 cubic yards or if the other property on which the fill is to be placed is located within 0.75 miles of Oak Creek, or lies within a city designated flood plain. The City Engineer may approve or deny permission to place such material.

The contractor shall provide copies of all required testing to the Engineering Department.

The City reserves the right to require that payment requests be submitted in a format it approves.

The City may require information as necessary to verify proper work eligibility of persons, subcontractor, or others providing labor, equipment, material or services to this project. This may include but is not limited to social security numbers, driver's license numbers, and evidence of age or citizenship.

13. Easements

In addition to the requirements of Section 17 of the General Conditions, the following shall apply. The Contractor shall remain within easement areas and rights-of-way obtained or owned by the City or easement areas the Contractor has obtained. Disturbed areas shall be reasonably restored upon completion of installation of the project improvements and related appurtenances in the easement. The Contractor shall be responsible to adhere to easement provisions whether the easement was obtained by Contractor or City. A temporary 4-foot high orange fence shall be placed to define the work area for all easements encompassing all work that occurs outside the City right-of-way. Clearing by manual means for the purpose of defining the area to be fenced shall be the only activity allowed on the easement before fence is placed. City shall provide the Contractor with a copy of the easement agreement with the property owner. Contractor shall be responsible for all restoration of the easement as described in the easement agreement. Trees and larger vegetation shall be preserved to the maximum extent practicable.

14. Survey Monuments

Prior to construction the Contractor shall locate property monuments located within and adjacent to the contract's easements. The Contractor shall be responsible for the preservation of all existing property pins. If disturbed or damaged the Contractor shall be responsible for all costs associated with the restoration of any property pins disturbed by the construction activities. Any property pins, which require resetting, shall be done under the direction of a licensed surveyor by the State of Arizona. Compensation for this work shall be considered included in the bid item Excavation.

15. Permits

The Contractor shall be responsible for obtaining permits bearing on the work and adhere to provisions of said permits. The Contractor shall also adhere to requirements of Homeowner Associations or similar organizations when establishing equipment, storage or other yards within subdivisions. Evidence of such adherence shall be provided in writing, if requested by the City.

Permits required for this project will include, but not be limited to the following,

- a) City of Sedona General Storm Water Pollution Prevention Guidelines NOI.
- b) Temporary Use Permit for staging/laydown yard.
- c) Arizona Department of Environmental Quality NOI will be required if disturbance area is over 1 acre.
- c) Army Corps of Engineers Nationwide Permit Number 43 for Stormwater Management Facilities

The City of Sedona has applied for an Army Corps of Engineers permit. The contractor will be responsible for adhering to the conditions of the Nationwide Permit Number 43 for Stormwater Management Facilities. A copy of the permit is included within this contract document, after the Geotechnical Report.

16. Utility Relocation

It shall be the responsibility of the Contractor to arrange and coordinate the relocation of any utilities found to be in conflict with the work. Utility relocation costs not identified as a bid item in the contract will be the City's responsibility.

17. Access to Adjacent Properties

Care shall be taken not to block access into or out of properties adjacent to the work. Access may be limited to one 11-foot wide driveway lane during working hours, provided proper traffic control is provided, as approved by the City Engineer.

18. Local Drainage

The Contractor shall reconstruct roadways, driveways, sidewalks, ditches and other surfaces at elevations that will ensure the drainage is improved or unchanged from the existing pre-construction conditions.

The Contractor shall manage any upstream flows during construction to maintain continuous conveyance and historic flow patterns through the project area.

19. Required Inspection

Work requiring inspection includes the following: testing, asphalt preparation and placement, cleanup, rebar inspection, traffic control setup and removal, trench bedding placement and backfill compaction, pipe placement, and concrete formwork prior to pouring concrete.

20. Potentially Dangerous Work

General Conditions, Section 45, “Potentially Dangerous Work,” Page GC-42, at the end of this section add the following, “D. If blasting is required, building inspection reports must be conducted for properties within 150’ of the proposed blasting area. For affected structures that are to remain after the construction, the report shall consider and document the existing structural and architectural condition of those structures. The intent of this report is to document the condition of such structures before construction, obtain agreement with the property owner, and use for comparison purposes after construction is completed, to ensure the structure was not damaged by construction activities.”

21. Quality Control and Testing

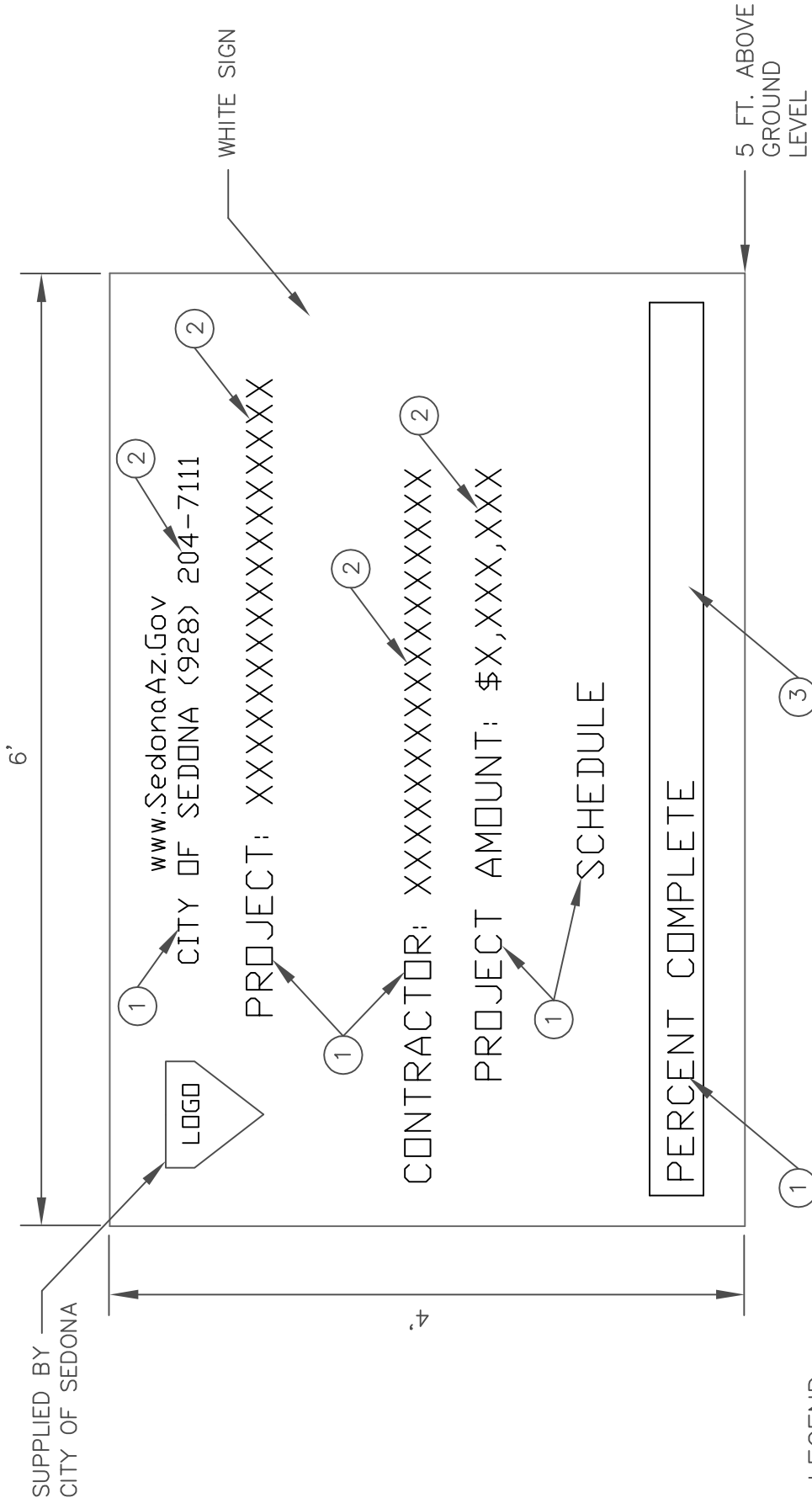
General Conditions, Section 58.H, “Quality Control and Testing,” Page GC-54, at the end of this section add the following, “In addition to these testing requirements, calibration testing shall be performed after every 10 tests noted above, in compliance with ASTM D1556 (Sand Cone Method).

22. Payment Withheld

General Conditions, Section 32.A, “Payment Withheld,” Page GC-34, at the end of this list add the following, “9. Disputed work or materials, 10. Failure to comply with other material provisions of the contract, 11. Third party claims filed or reasonable evidence that a claim will be filed, 12. Failure of the contractor or a subcontractor to make timely payments for labor, equipment, and materials, 13. Damage to the owner”

23. Geotechnical Report

Geotechnical information by Speedie and Associates is included in this document and the requirements thereof are hereby incorporated into the contract.



LEGEND:

- ① - 4" BLACK LETTERING
- ② - 4" BLUE LETTERING
- ③ - WHITE WITH RED INDICATOR

SCALE: N.T.S.

DWG FullPath: L:\Sedona Standard Details\07.dwgPlot Date/Time: 04/26/11 10:46am

SPECIAL DETAIL NO.
07

CHECK WITH CITY ENGINEER FOR UPDATES

PROJECT CONSTRUCTION SIGN

SPECIAL DETAIL NO.
07

NOTICE OF AWARD

Date

Contractor Name.
Street or PO Box
City, State Zip

SUBJECT: NOTICE OF AWARD – HARMONY-WINDSONG PHASE IV DRAINAGE PROJECT

The City of Sedona, having duly considered the bid submitted on _____, 2013 for the City of Sedona _____ as outlined in the Contract Documents and detailed on the drawings, and it appearing that your proposal for performing the work is fair, equitable, and in the City’s best interest, and the bid includes price for work in the bid schedule in the estimated total amount of \$ _____ said bid is hereby accepted at the prices contained therein, and in accordance with all provisions set forth in the Contract Documents.

In accordance with the terms of the Contract Documents, you are required to execute the formal Contract and furnish the required Performance and Payment Bonds within ten (10) consecutive calendar days from and including the date of receipt of this Notice.

In addition, you are requested to furnish at the same time, the required Owner's protective liability and property damage insurance policy, and certificates of insurance in triplicate evidencing compliance with the other requirements for insurance stated in the Contract Documents. Your certificates of insurance shall be accompanied by a letter from your insurance company stating that the insurance certificate meets the entire requirements of the specifications, or shall state and describe specific exclusions.

The Bid Bond submitted with your proposal will be retained until the Contract has been executed and the required Performance and Payment Bonds have been furnished and approved. In the event that you should fail to execute the Contract or furnish the Performance and Payment Bonds within the time limit specified, the City, at its discretion, may cash the Bid Bond and proceed with steps that are in the City's best interest.

RECEIVED AND ACCEPTED:

Contractor
By:
Name: _____
Date: _____
Enclosures (3) contracts

CITY OF SEDONA, ARIZONA

Sincerely,

Charles Mosley, P.E.,
Director of Public Works/City Engineer

CM/ms
cc: City Manager

NOTICE TO PROCEED

Date

Contractor Name.
Street or PO Box
City, State Zip

Attention:

Subject: **NOTICE TO PROCEED - HARMONY-WINDSONG PHASE IV DRAINAGE PROJECT**

You are hereby authorized to proceed with work effective _____, 2013 and fully complete all work within _____ consecutive days from this date. The completion date for this Project is therefore _____, 2013. Liquidated damages of \$ **500 per day** are applicable for each day past _____, 2013 for which work on this Project is not complete, unless an adjustment is authorized by a change order. Please acknowledge your receipt of this letter and agreement with the terms stated by signing in the space provided and returning to the City for our files.

CITY OF SEDONA, ARIZONA

BY: _____
Charles Mosley, P.E.
Director of Public Works/City Engineer

Receipt
Acknowledged

Date: _____

By: _____

Date: _____

City of Sedona
Public Works Department
Change Order

This change order is not effective unless signed by the City Manager of the City of Sedona or his properly designated representative. Section 47 of the Contract General Conditions shall apply

THIS CHANGE ORDER CONSTITUTES FULL, FINAL, AND COMPLETE COMPENSATION TO THE CONTRACTOR FOR ALL COSTS, EXPENSES, OVERHEAD, PROFIT, AND ANY DAMAGES OF EVERY KIND THAT THE CONTRACTOR MAY INCUR IN CONNECTION WITH THE WORK DESCRIBED IN THIS CHANGE ORDER, INCLUDING ANY IMPACT ON THE DESCRIBED WORK OR ON ANY OTHER WORK UNDER THE CONTRACT, ANY CHANGES IN THE SEQUENCES OF ANY WORK, ANY DELAY TO ANY WORK, ANY DISRUPTION OF ANY WORK, ANY RESCHEDULING OF ANY WORK, AND ANY OTHER EFFECT ON ANY OF THE WORK UNDER THIS CONTRACT. BY THE EXECUTION OF THIS CHANGE ORDER, THE CONTRACTOR ACCEPTS THE CONTRACT PRICE CHANGE AND THE CONTRACT COMPLETION DATE CHANGE, IF ANY, AND EXPRESSLY WAIVES ANY CLAIMS FOR ANY ADDITIONAL COMPENSATION, DAMAGES OR TIME EXTENSIONS, IN CONNECTION WITH THE DESCRIBED WORK.

CHANGE ORDER NO. _____ **DATE:** _____
Project: Harmony-Windsong Phase IV Drainage Project
Contractor Name: _____
Brief description of change: _____

Plan Sheets #s affected by this change: _____
Specification Sections upon which Change Order based: _____
Change requested by (check one): City Contractor Both
Contract Time adjustment: _____
This contract change order **increases** **decreases** **the maximum estimated contract compensation per General Conditions Section 47 contract adjustments as follows:**

\$ _____	\$ _____	\$ _____	\$ _____	=	\$ _____
Method A	Method B	Method C	Method D		Total cost adjustment

Contract Compensation:
 Original contract amount _____
 This Change Order _____
 All previous Change Orders _____
 Total Maximum Compensation _____
 (including this change order)
The total Contract days based upon the same change orders is _____ **calendar days.**

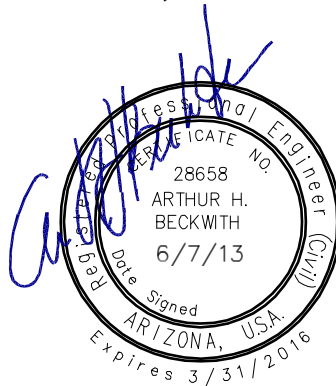
CONTRACTOR - ACCEPTANCE BY: _____ DATE: _____	CITY OF SEDONA - ENGINEERING DEPT. APPROVED BY: _____ DATE: _____
CITY OF SEDONA - CITY MANAGER APPROVAL BY: _____ DATE: _____	

Attach a more complete description of the change and supporting documentation to this form. Form to be signed in three copies.

TECHNICAL SPECIFICATIONS FOR HARMONY WINDSONG PHASE IV

Prepared for:
City of Sedona
102 Roadrunner Drive
Sedona, AZ 86336

Prepared by:
Shephard – Wesnitzer, Inc.
Consulting Engineers
75 Kallof Place
Sedona, AZ 86336



June 7, 2013
Job No. 12213

TECHNICAL SPECIFICATIONS

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1.0 GENERAL TECHNICAL REQUIREMENTS

The following items are non-payment items being considered incidental to the project, the costs of which are to be included in project overhead or within a specific bid item.

1.1. Additional Reference Standards

- 1.1.1 The "MAG Specifications" is more particularly defined as the Maricopa Association of Governments (MAG), *Uniform Standard Specifications and Details for Public Works Construction*, 2012 Edition with latest revisions.
- 1.1.2 Latest revisions and amendments to City of Sedona, City Code, Title 15 (Building) and Title 13 (Stormwater).
- 1.1.3 1.1.5 U.S. Department of Transportation, *Manual on Uniform Traffic Control Devices (MUTCD)*, 2003 Edition with latest revisions
- 1.1.4 Latest revisions of ASTM, AWWA, ANSI, or Federal specifications, standards and details.
- 1.1.5 In the event of a conflict between the Construction Drawings *and* the Contract language, the Contract language shall prevail.
- 1.1.6 In the event of a conflict between the ASTM, AWWA, ANSI, or Federal specifications, standards and details *and* the MAG Uniform Standard Specifications and Details for Public Works Construction or the City Construction Specifications, the City Construction Specifications shall prevail.
- 1.1.7 In the event of a conflict between the AWWA, ANSI, or Federal specifications, standards and details *and* the Contract language, the Contract language shall prevail.

1.2 Project Videotape

The Contractor, in the presence of the City's inspector, shall make a video (*DVD format, indexed*) of the entire project area prior to commencing any construction activities. The Contractor and City's Inspector will review the video for completeness, immediately after recording and any areas that are not clearly covered and defined, shall be re-recorded. The Contractor shall turn over a copy of the video to the City's Inspector at completion of the recording.

1.3 Soil and Subsurface Conditions

The following is added to MAG Specification Section 102.4, Examination of Plans, Special Provisions and Site Work: A report titled Report on Geotechnical Investigation, Harmony - Windsong Drainage Channel Phase 4, by Speedie and

Associates dated December 31, 2012, and addendum letter to the Geotechnical Investigation dated January 14, 2013, are hereby referenced and made a part of this document. The Contractor may use this report and shall make his own determinations as to the soil and subsurface conditions, including rock, clay, and ground water, and shall complete the work in whatever material and under whatever conditions may be encountered or created, without extra cost to the City.

1.4 Other Agency/Utility Company Notifications/Protection of Existing Facilities

The Contractor shall conduct his operations as set forth in Section 105.6 of the MAG Standard Specifications. The Contractor is responsible for protecting all existing facilities during construction at no additional cost to the City. This may include but is not limited to coordinating, potholing and monitoring as directed by the individual utility companies. The locations of existing underground utilities have been shown on the plans to the best of the Design Engineer's knowledge; however, it shall be the Contractor's responsibility to field verify all utility locations and to coordinate in a timely manner with the pertinent utility companies so that any obstructing utility installation may be adjusted without delay to the Contractor's project schedule. The Contractor shall be responsible for potholing all utility conflicts in a timely manner.

The following utilities have facilities in the vicinity of the project limits:

- City of Sedona (sewer and traffic control)
- Suddenlink (cable)
- Unisource (gas)
- Century Link (telephone)
- APS-Electric (overhead and underground)
- Arizona Water Company (water)

Contacts: The following telephone numbers should put the Contractor in contact with the proper personnel:

City of Sedona Project Manager - Andy Dickey
102 Roadrunner Drive, Sedona, AZ. 86336-3710
Tel: 928-203-5039, Fax: 928-282-5348, ADickey@sedonaaz.gov
Stephen Craver
Tel: 928-203-5059, Fax: 928-282-5348, SCraver@sedonaaz.gov

Suddenlink (Cable Co.) – Richard A. Davis, Construction Coordinator
65 Coffee Pot Drive, Sedona, AZ 86336
Tel: 928-204-1085, richard.davis2@suddenlink.com

Unisource – Jim Duncan
215 Coffee Pot Drive, Sedona, AZ 86336
Tel: 928-203-1210, Fax: 928-634-8994, JDuncan@uesaz.com
Monette Fanning, Planner

500 S Willard Street, Cottonwood, AZ 86326
Tel: 928-203-1214, Fax: 928-634-8994, mfanning@uesaz.com
Bill Pearry, District Manager, bpearry@uesaz.com
Tel: 928-203-1222
Rob Justus, Service Supervisor, rjustus@uesaz.com
928-203-1220

Century Link (Telephone Co.) – Karen J. Prutzman,
500 S Calvary Way, Cottonwood, AZ, 86326
Chad Henkel, Engineer, chad.henkel@centurylink.com
Tel: 928-634-2102, Fax: 928-634-5321

Arizona Water Company – John Snickers, Operations Superintendent
65 Coffee Pot Drive, Suite 7, Sedona, AZ 86336
Tel: 928-282-5555 ext 16, Fax 928-282-6131, jsnickers@azwater.com

APS Electric (12 kV) – Sandy Finley, Customer Project Manager Sr.
1250 E. State Route 89A, Cottonwood, AZ 86326
Tel: 928-646-8463, Fax: 928-646-8434, sandra.finley@aps.com

Coordination:

Coordination with the pertinent utility companies has been a part of the development of this project. Construction activities shall be coordinated and scheduled to incorporate the following applicable utility construction activities.

- AWC also has water main re-alignment at Sta 49+44 and will complete these during construction.
- Century Link will relocate underground telephone lines in conflict with the proposed Storm Drain at Sta 49+52 during construction.
- APS will relocate underground 2” conduit and wire at Sta 49+52 during construction.

Cooperation between Contractors and Other Agency Projects:

General: Shall conform to the requirements of MAG Section 105.7 except as modified herein.

The Contractor is advised that there may be construction activity adjacent to the project site. The Contractor is to coordinate the work to accommodate the construction activities.

The Contractor shall contact the City of Sedona, to verify all projects in the vicinity of this project. The Contactor is advised that it shall schedule and coordinate all work activities so as not to adversely conflict with this work.

1.5 Submittals

1.5.1 General

All submittals shall conform to the requirements of MAG Standard Specifications Section 105.2, except as modified by Section 3.10 of the Contract's General Terms and Conditions and as noted herein.

1.5.2 Format, Distribution and Review

- Shop drawing submittals shall be on no larger than 24"x36" or 11"x17" sheets as needed. All drawings shall indicate the name of the job, the City's job number, date, names of the Contractor and subcontractor, and the date of approval by the Contractor. All other technical data, catalog cut sheets, material/fabrication certificates or material mix design reports shall be presented in a 3-hole, bound, 8 ½" x 11" format. Faxed documents are not acceptable. Each submittal package must have a separate transmittal document, cover sheet and index. The Contractor must also create and update a standardized, itemized submittal tracking log spreadsheet and attach with each submittal or re-submittal.
- The Contractor shall first review all submitted data for compliance with the specifications and job requirements prior to any submittal. Clearly indicate what specific item, type, model, class, color, size, etc. is to be used and note any Contractor comments or recommendations on the submitted data. Six (6) identical Contractor approved copies along with a letter of transmittal and the tracking log sheet shall be delivered to the City or its authorized representative.
- The Contractor shall anticipate and schedule for a review period of ten (10) business days by the City and/or its designee during which time the submittal(s) will either be approved, approved with comments, disapproved, asked to be revised, or additional information may be requested. Three (3) reviewed copies, stamped/noted approved or otherwise, will be returned to the Contractor by the City or its authorized representative. The latter three directions will require a re-submittal and subsequent additional ten day review period. Re-submittals shall be made within seven (7) business days. The process will be repeated until all required, submitted materials have been approved. Approved shop drawings and other material submittals shall become a portion of the Contract Documents as they are returned to the Contractor.

1.5.3 Materials / Product Data

The following materials / product data shall be submitted for review and approval:

- Pipe, fittings, gaskets, joint restraints, polyethylene encasement material other hardware appurtenances
- Valves, valve boxes, debris caps, valve key extensions, fire hydrants, tapping sleeves, air/vacuum valve assemblies, corporation/curb stops and service saddles, encasements, end seals and other appurtenances
- Valve vaults, manholes, catch basins and other precast structures
- Samples such as paint, signing, marking, lighting, controllers, video detection equipment, and other materials/ products

Product data shall include information such as the manufacturer's printed recommendations, compliance with recognized trade association standards, application of testing agency labels and seals, product dimensioning, and notation of coordination requirements. Data shall also include the source location and quantity of materials that are or will be available for the project. The Contractor shall provide materials that have uniformity in color, size, and appearance.

1.5.4 Certificates

The following certificates shall be submitted for review and approval:

- Piping materials
- Reinforcing Steel

Certificates shall be prepared by the manufacturer or testing agency thereof and should include technical specifications and compliance with industry trade association and testing agency standards.

1.5.5 Mix Designs

The following mix designs shall be submitted for review and approval:

- Asphalt Concrete (AC) pavement
- Portland Cement Concrete
- Aggregate Base Course (ABC) material
- Controlled Low Strength Material (CLSM)

The mix designs shall directly compare the proposed mix components and properties with those of the referenced standard mix or as modified within the designated specifications.

1.5.6 Shop Drawings

The following shop drawings or documents shall be submitted for review and approval:

- Traffic control plans-haul routes, staging area, contractor's office location
- Utility protection plans
- 24-hour emergency contacts (names and phone numbers)
- Special fabrications/hardware
- Shoring / trench box protection details (sealed by an Arizona registered professional structural engineer)
- Utility testing and disinfection documentation

All dimensions and identification of products and materials included, along with notation of any coordination requirements and established field dimensions/measurements shall be clearly shown or noted.

1.5.7 Poured In Place Concrete

The consistency of the concrete shall be determined and regulated on the basis of the slump test as described by ASTM C-143. Slump tests shall be provided by the Contractor throughout the progress of the project. Concrete shall be of the class and strength indicated on the Contract Plan Drawings or as otherwise directed by these Specifications.

For additional information see City of Sedona General Conditions Section 58.

All exposed concrete shall be an integral Sedona Red color. The amount of concrete color additive required is 3.05 lbs of Davis 160 liquid per sack of concrete. Variations in the additive to accomplish the "Sedona Red" shall be subject to City Engineer approval.

1.6 Permits

The City of Sedona Engineering Right-of-Way Permit fee will be waived for this project. All required permits will be the Contractor's responsibility to obtain and pay for including but not limited to; ADEQ Dust Control Permit, and Arizona Water Company fire hydrant meter fees. The cost for all permits shall be included in the Contractor's schedule of values.

1.7 Sampling and Testing

For quality control purposes, the Contractor shall provide and pay for all geotechnical services including material sampling and testing per General Condition Section 58 “Quality Control and Testing” and as modified below. This work shall be considered a non-pay item and should be included in the appropriate pay item. Samples shall be taken under the direction of the City or its authorized representative. Testing shall be performed by an independent testing laboratory, pre-approved by the City or its authorized representative, under the supervision of a professional civil or geotechnical engineer registered in the State of Arizona. Written test reports shall be sent directly to the City or its authorized representative within five (5) business days after the tests are conducted. Each report shall indicate the location at which the test was made, the date of the test, type and source of material tested, test designation being used and the name of the person who performed the test. The Contractor shall pay for any retesting as a result of a failed test.

1.7.1 Aggregate Materials for Pipe Bedding/Backfill and Pavement Replacement

The laboratory shall collect the sample from the proposed material source and submit test results for approval per General Conditions Section 58 “Quality Control and Testing”. The laboratory report shall identify the source and include gradation of the material, plasticity index, liquid limit and percentage of water. If more than one material source is proposed for approval, the Contractor shall pay for the necessary test to confirm the suitability of the additional sources.

1.7.2 Trench Compaction Tests

The Contractor shall excavate the compacted backfill where directed by the City or its authorized representative for the purpose of conducting the following density tests as outlined below. The cost of all excavation, including backfill and re-compaction, shall be the Contractor’s responsibility. The materials being compacted shall have the densities outlined in the General Conditions Section 58 “Quality Control and Testing”. The City or its authorized representative will choose the location and depth for the in-place density tests. If any test made should fail to pass, the area must be reworked and one additional test must be taken at the Contractor’s expense. It shall be the responsibility of the Contractor to accomplish the required backfill compaction and to control his operations by providing additional testing as necessary to verify and confirm that the contractor is complying with the requirements of the compaction specifications. The Contractor shall determine the required optimum moisture content and control this moisture accordingly.

1.7.3 Poured In Place Concrete

The consistency of the concrete shall be determined and regulated on the basis of the slump test as described by ASTM C-143. Slump tests shall be provided by the Contractor throughout the progress of the project. Concrete shall be of the class and strength indicated on the Contract Plan Drawings or as otherwise directed by these Specifications.

Not less than four (4) cylinder specimens shall be made by the Contractor for each 50 cubic yards of each class of concrete with a minimum of four (4) specimens for each class placed or not less than 4 specimens for each half-day of placement. Specimens shall be tested in accordance with ASTM C-42. Two (2) cylinders shall be tested at fourteen (14) days. If the tested strength meets or exceeds the minimum 14-day requirements, the City may accept the concrete. The City or its authorized representative may have the other two cylinders tested at 28 days or discard at 60 days. Retesting as a result of failure shall be done at the Contractor's expense.

1.7.4 Aggregate Base Materials Compaction Tests

One (1) compaction test will be required on the compacted base material every 300 feet of pavement cut or fraction thereof per lift. Areas of less than 300 feet in length will require a minimum of two (2) tests. The City or its authorized representative will choose the location and depth of in-place density tests. If any test made should fail, the area must be reworked and two (2) additional tests shall be taken at the Contractor's expense. The compacted base material shall be compacted to one hundred (100%) percent of maximum density for the full depth when tested in accordance with MAG Specifications Section 301.3 and 310.2. Aggregate base material shall not be placed on subgrade until final compaction tests of the subgrade have confirmed that the subgrade meets the compaction requirements of these Specifications.

1.7.5 Asphalt Concrete Pavement Testing

- One (1) Marshall test, gradation test and oil content test per day, or per 1,000 tons of asphalt placed, whichever is more frequent.
- One (1) nuclear density gauge test every 300 lineal feet per lift.
- Asphalt pavement cores shall be taken in accordance with MAG Standard Specification Section 321.6. If the test cores indicate deficiencies, additional cores shall be required per MAG. Any associated additional testing costs shall be the contractor's responsibility.

1.8 Construction Survey

The Contractor shall be required to employ and retain at the Work Site, an

independent land surveyor registered in the State of Arizona with the experience and capability of performing the initial survey control and layout tasks required of the Contractor to properly construct the work and to sign off on as-builts. A registered land surveyor is not required to perform the construction staking. The surveyor shall verify the elevations and grades shown on the plans and inform the City Engineer or his Representative of any discrepancies with the plans. Field adjustments may be necessary with prior approval of the City Engineer or his Representative.

1.8.1 General

- From established primary control points, Contractor shall furnish all required lines, measurements, grades and elevations for construction of all facilities, structures, pipelines, street construction and all other site improvements.
- Contractor shall establish a base line for the project based upon the control information provided in the Contract Documents and establish a minimum of three benchmarks suitable to the work.
- Contractor shall develop and make all detailed surveys, measurements and staking needed for construction including all temporary benchmarks, control points, work lines, stationing, grade / slope elevations, pipe / structure inverts, batter boards, off-sets, and cut sheets.
- Contractor shall keep current, accurate, organized and legible as-built notes and measurements of the constructed work. Surveyor shall maintain a complete and accurate log of all control and survey work as it progresses. All survey data, field notes and computations shall be recorded and kept in industry standard hard bound field books, all in accordance with recognized established professional surveying standards.
- Contractor shall be held responsible for the preservation of all benchmarks, points, marks, and stakes made or established for the work. Contractor shall reestablish and replace the same, at no additional cost to the City, any construction surveying / staking that has been accidentally, carelessly or willfully destroyed by any party.

1.8.2 Survey Staking Guidelines and Tolerances

- Alignment Staking – Every 50 ft on tangent and every 25 ft on curves.
- Slope Staking – Every 50 ft on tangent and every 25 ft on curves; re-stake every 10 ft in elevation.
- Easement Staking – Every 50 ft on tangent and every 25 ft on curves; wooden lath with flagging.

- Structures – Line stationing and at least two corners for location with two sets of off-sets plus centerline of inlets/outlets; elevations of bottom or floor and inlet/outlet inverts as necessary.
- Pipelines – Line stationing at appropriate offset dimensions with invert elevations for all pipe, fittings, horizontal and vertical bends, manholes, valves, fire hydrants and all appurtenances.
- Pavement Replacement – Where trenchwork requires pavement replacement the excavation, backfill, compaction and pavement shall follow MAG Detail 200, “T” Top construction. The contractor shall provide blue tops, where necessary, to establish subgrade and finished grades prior to paving operations.
- Asphalt Pavement – Provide a thorough check of the proposed pavement elevations and adjacent existing improvements verifying acceptable drainage flow following existing drainage patterns, prior to placement of new asphalt.
- Record Staking – Provide permanent stake at stub-outs, services and end-of-lines.
- Horizontal accuracy of easement staking shall be plus or minus 0.1 ft. Accuracy of all other staking shall be plus or minus 0.04 ft horizontally and plus or minus 0.02 ft vertically.
- Survey calculations shall include an error analysis sufficient to demonstrate the required accuracy.

1.8.3 Re-establishment of Survey Monuments

- Monument locations shall be marked with "straddlers" (four nails with metal "shiners") that are driven into the pavement, placed in pairs approximately six feet apart and opposite to each other. Lines connecting opposing pairs shall form a 90-degree cross with three-foot legs. The center of the cross shall signify the exact location of the center of the monument to be set. Monuments shall be drilled or punched after they have been installed.

1.8.4 As-built Record Drawings

- All excavation is to remain open and no backfill shall take place until all underground fittings including but not limited to tees, valves, horizontal bends, vertical bends, stub-outs, and any other required facilities have been as-built. Contractor must make items accessible in which the Contractor's Surveyor can as-built survey and properly document the elevation and location of all items listed above. Any item which is

backfilled without being as-built shall be re-excavated at the Contractor's expense to allow the Surveyor to as-built.

- The Contractor shall maintain a full size set of blue/black line drawings on-site and continuously update these drawings to reflect any and all field adjustments, changes, additions, deletions etc. as they occur during the course of construction. Changes to the original Plan Drawings shall be made by striking through the original information with a single line. The as-built changes shall be noted with the letters 'AB' after the correction. The as-built changes shall be shown in both plan and profile as appropriate. Changes in horizontal alignment shall be noted on the plan and tied down by stationing and offsets from the monument line. Any portions of the Work not constructed shall be clearly labeled "Deleted" and marked with an "X" through the deleted work.
- The City or its authorized representative will check the Contractor's as-built drawings set for accuracy and completeness on a monthly basis. The Contractor shall certify with each monthly pay request that the as-built drawings are current per General Conditions Section 15 "Lines and Grades" and Section 31 "Progress Payments".
- At project completion, the Contractor shall submit a final, clean, full size set of blue/black line record plan drawings showing the entire project with the as-built information as described above. This final set shall be prepared, reviewed and sealed by the Contractor's surveyor. The City shall review the final paper set for completeness and acceptability. If rejected, the Contractor shall correct or complete the as-built drawings and resubmit for an additional review.
- After City review and approval of the final paper set as-built record drawings, the City shall give the Contractor's surveyor the project's permanent, original design set of plan drawings on which the surveyor shall cleanly and professionally mark-up to prepare the "official" sealed set of certified project record drawings and then return these as-built record drawings to the City. This submittal will be required to obtain final acceptance and final payment for the project.

1.9 Maintenance and Protection of Traffic, Access

The Contractor shall remain sensitive to any ongoing development being constructed in the immediate vicinity of this project area. Good coordination with nearby contractors will be crucial in avoiding construction conflicts and maintaining an efficient working environment. This area has high volumes of local and through traffic. The sequence of construction shall be of particular importance in maintaining safe and steady traffic flow.

The City of Sedona will provide a schedule of public events and will solicit the

area for private events. The contractor will make suitable effort to accommodate the event traffic by restricting work hours and providing safe access.

For a complete closure of Moonglow Drive, the Contractor will set up a detour route along Harmony Drive to Windsong Drive, with advance warning detour signs on Harmony Drive, and detour signs throughout, or as directed by the Engineer.

The contractor shall furnish and maintain temporary traffic signs.

1.10 Safety Fence Requirement for Trenches and Excavations

The Contractor shall provide safety construction fencing around all open trenches and excavations during all non-working hours. In addition, the Contractor shall provide safety fencing around the project site during working hours in order to ensure for public safety.

The Contractor shall provide for the safety and welfare of the general public by adequately fencing all excavations and trenches that are permitted by the Engineer to remain open when construction is not in progress.

Fencing shall be securely anchored to approved steel posts located six (6) feet on center, having a minimum height of six (6) feet, and shall consist of wire mesh fabric of sufficient weight and rigidity to adequately span a maximum supporting post separation of six (6) feet.

The fencing, when installed about the periphery of excavations and trenches, shall form an effective barrier against intrusion by the general public into areas of construction. The contractor, at all times when construction is not in progress, shall be responsible for maintaining the fencing in good repair, and upon notification by the Engineer, shall take immediate action to rectify any deficiency. Prior to the start of any excavation or trenching required for the execution of the proposed work, the contractor shall submit to the Engineer for approval, detailed plans showing types of materials and methods of fabrication for the protective fencing.

There will be no separate measurement or payment for furnishing, installing, or maintaining protective fencing. The cost shall be considered incidental to the cost of the pipe, bridge, and any other structures.

2.0 MEASUREMENT AND PAYMENT

2.1 General

- Measurement for each bid item shall be done in the units installed or percent complete as indicated in the Contract's Price Sheet, "Exhibit C". Measurement shall be for all work that is satisfactorily completed in place, with no allowance for waste, and that which is verified by field measurements.

- In general, payments to the Contractor shall be in accordance with Section 31, "PROGRESS PAYMENTS" of the General Conditions. Specific payment guidelines shall be in accordance with the MAG Specifications as applicable or as more particularly described below in Section 2.2, Items of Work, of these Technical Specifications. Payment will be made at the unit price or lump sum price that was bid and is shown on the Bid Schedule and shall constitute payment in full for furnishing all materials, equipment, appurtenances, labor, plant and tools necessary to provide a complete project in a workmanlike and satisfactory manner as shown by the Contract Drawings and described herein.

2.2 Items of Work

The item numbers listed below correspond to the item numbers listed in the Bid Schedule.

Items 1 through 6, 8 and 9 – Storm Drain

General: This work consists of installation of various sized storm drain pipe as shown on the Project Plans, as noted for size, shape and gauge. All Corrugated Metal Pipe shall be metallic coated, zinc or aluminum, and shall conform to the requirements of MAG Section 760.

4" roof drains to be shortened as necessary and swale constructed to drain to center swale over pipes.

24", 30" and 36" CMP are to be 14 gage. Trenching shall be per MAG Standard Detail 510 and all backfill shall be Select Fill unless otherwise noted.

Trenching for all storm drain piping to be per MAG Standard Detail 510 and all pipe backfill shall be Select Fill as described in MAG Specification 702 with the Gradation Type A.

All connecting bands shall have rubber or neoprene O-ring for pipe segments of similar size and fabrication per ASTM C 361 Section 5.9, concrete field connection per MAG Standard Drawing 522, or manufacturer's recommendation for dissimilar material. Connections to storm drain laterals, elbows, Tees, and manholes shall be prefabricated.

Construction shall be in accordance with MAG Section, 601, 618 and 621, and as shown on the project plans.

Work includes sawcutting and removal of any existing pipe, furnishing and installing new pipe, construction of concrete collars on the pipe, excavation, bedding, backfill, and compaction, where required.

The trench floor shall be over excavated and a bedding material placed per

the Project Plans. If the trench floor is completely within rock, the over excavation below the pipe shall be 6 inches. Any soil in the bottom of the trench not deemed suitable as bedding shall be removed and replaced with select fill to the satisfaction of the City Engineer. The cost of removal and replacement of unsuitable bedding will be considered incidental to the price bid for the pipe construction operation. Scarify the trench floor to a minimum depth of 12" and re-compact material to not less than 95 percent of the maximum density as determined by AASHTO T-99 and T-191 or ASTM D-2922 and D3017.

Bedding shall be a washed, 1/4-inch screened gravel meeting the requirements of MAG Specification 702. Water jetting compaction is not allowed.

The pipe backfill shall be a select material placed per the Project Plans. The Select Material shall meet the requirements of MAG Section 702 with the Gradation Type A. The material may be derived from native soils, if it meets or is processed to meet the above requirements. Compaction shall meet the requirements of MAG Section 601.

Filter Fabric shall meet the requirements of ADOT Standard Specification 1014- 4.

The dual 72" or 60" CMP storm drain items shall be measured and paid as two pipes per lineal foot, measured along the project station line, between the pipes.

Pipe bends and reducers shall be prefabricated, concrete pipe collars or as approved by the City Engineer, sufficient to ensure no gaps are formed between pipe ends larger than 1/2 inch, and the pipe alignments are held within the pipe trench, with 1-foot minimum clearance, based on constructing the pipe trench per Details 1 and 2, on Plan Sheet 2 of 11, and constructing the trench bends, where applicable, per the geometry defined by the construction centerline. If pipe material or size changes are required they shall occur at the joint upstream of manhole and is reflected in the bid schedule quantities.

The Storm Drain at the upstream end of Phase III, downstream of the existing inlet shown on plan Sheet 5 of 11 is dual 72" SRMP. The easterly pipe has had the normal end cut off and will need to be attached using a reinforced concrete collar per MAG Detail 505.

Select Fill shall meet the requirements of MAG Section 702 with Gradation Type A. The material may be derived from native soils, if it meets or is processed to meet the above requirements. Compaction shall meet the requirements of MAG Section 601 and the General Conditions.

Item 7 – Dual Manholes, Detail 4, Sheet C2

This work consists of construction of new storm water manholes per the Detail 4 on Sheet C2 at the location indicated on the plans. Construction shall include berm, filter fabric and riprap and be in accordance with these specifications, plans and details. Types and depths as indicated on the plans.

The manhole top shall rest on the surrounding ground and not on the metal riser. The manhole shall include a non-shrink grout to seal the underside of the manhole. Joints between the top, grade rings, and/or the frame shall include a seal per the manufacturer's recommendation. The cover shall be grated as shown in Detail 4 on Sheet C2.

Manhole risers shall be reinforced with 3x3x1/4 angles or as approved by the Engineer.

The berm shall be as shown on Detail 4, Sheet C2 with side slopes that must catch within the easement as shown on the Project Plans. The top shall be rounded after compaction and the typical section is constructed. The berm material shall be select material per the Project Plans. The Select Material shall meet the requirements of MAG Section 702 with Gradation Type A. The material may be generated from native soils, if it meets or is processed to meet the above requirements. Compaction shall meet the requirements of MAG Section 601.

Filter fabric shall be placed on the subgrade and riprap placed on the filter fabric in accordance with these specifications, plans and details.

Payment will be made at the contract unit price bid, which price shall be full compensation for the manhole as shown on the standard detail and as modified within the project plans, complete-in-place and functioning.

Item 10 – Catch Basin Detail 5, Sheet C2

This work consists of construction of new storm water catch basin at the location indicated on the Project Plans. Construction shall be in accordance with CMP Catch Basin Detail 5 as shown on the Project Plans. Types and depths as indicated on the plans.

Payment will be made at the contract unit price bid, which price shall be full compensation for the catch basin as shown on the standard detail and as modified within the project plans, complete-in-place and functioning.

Item 11 – Slurry Pipe Bedding and Backfill, Detail 6, Sheet C2

This work consists of construction of placing 1-1/2 sack Controlled Low Strength Material (CLSM) per MAG Section 728. The slurry shall be used for both the pipe bedding and pipe backfill in place of the materials shown on the typical trench sections. The trench limits will be formed to the extent

possible. The French Drain shall be perforated, Schedule 40 Polyvinyl Chloride (PVC) pipe, sized as shown on the project plans, for the upstream and downstream areas of the CLSM. The French Drain through the CLSM shall be solid wall Schedule 40 PVC.

Payment will be made at the contract unit price bid, which price shall be full compensation for the slurry pipe bedding and backfill including the french drain as shown on Detail 6, Sheet C2 of the project plans, complete-in-place and functioning.

Item 12 – Protect Tree in Place

For the trees identified in the project plans, the Contractor shall provide reasonable efforts to shore, brace, tie back, or tie up limbs to protect the trees from construction activity and undermining. The contractor shall identify any trees marked for protection that cannot be reasonably protected without substantial damage prior to any construction near the tree. Protecting in place shall include the trimming of tree limbs that would be subject to damage during the construction process. An approved sealant shall be used to seal the tree limb cut at the trunk of the tree. The Engineer shall approve in writing any trees slated for protection and trimming prior to removal.

Payment will be made at the contract unit price bid, which price shall be full compensation for the protection of tree in place per the project plans.

Item 13– Concrete Inlet Structure with Trash Rack, Sheet C3

This work consists of construction of a new concrete inlet structure with handrails and pipe trash rack and other items necessary for the accomplishment of the improvements as shown on plans or as directed by the Engineer at the location indicated on the plans. Construction shall be in accordance with MAG Sections 505 and 520 and the detail in the Project Plans. Trash rack to be constructed using salvaged and as well as new pipe from trash rack at the existing headwall at Sta 42+95.

All concrete shall be an integral Sedona Red. The amount of concrete color additive required is 3.05 lbs of Davis 160 liquid per sack of concrete. Variations in the additive to accomplish the “Sedona Red” shall be subject to City Engineer approval.

The subgrade shall be prepared in accordance with MAG Section 505.2 and the soils report.

Payment will be made at the contract unit price bid, which price shall be full compensation for the concrete inlet structure with handrails and trash rack as shown on the detail within the project plans, complete-in-place and functioning, including subgrade preparation, dewatering and rock seam grouting.

Item 14 – Concrete Inlet Structure, Sheet C4

This work consists of construction of a new concrete inlet structure with handrails and other items necessary for the accomplishment of the improvements as shown on plans or as directed by the Engineer at the location indicated on the plans. Construction shall be in accordance with MAG Sections 505 and 520 and the detail in the Project Plans.

All concrete shall be an integral Sedona Red. The amount of concrete color additive required is 3.05 lbs of Davis 160 liquid per sack of concrete. Variations in the additive to accomplish the “Sedona Red” shall be subject to City Engineer approval.

The subgrade shall be prepared in accordance with MAG Section 505.2 and the soils report.

Payment will be made at the contract unit price bid, which price shall be full compensation for the concrete inlet structure with handrails and trash rack as shown on the detail within the project plans, complete-in-place and functioning, including subgrade preparation, dewatering and rock seam grouting.

Item 15 – Concrete Headwall Structure

This work consists of construction of a new straight type concrete headwall structure per MAG Detail 501-1 and other items necessary for the accomplishment of the improvements as shown on plans or as directed by the Engineer at the location indicated on the plans. Construction shall be in accordance with MAG Sections 505 and 520 and the detail in the Project Plans.

All concrete shall be an integral Sedona Red. The amount of concrete color additive required is 3.05 lbs of Davis 160 liquid per sack of concrete. Variations in the additive to accomplish the “Sedona Red” shall be subject to City Engineer approval.

The subgrade shall be prepared in accordance with MAG Section 505.2 and the soils report.

Payment will be made at the contract unit price bid, which price shall be full compensation for the concrete inlet structure with handrails and trash rack as shown on the detail within the project plans, complete-in-place and functioning, including subgrade preparation, dewatering and rock seam grouting.

Item 16 – Swale Grading

Swale Grading shall include all necessary clearing and grubbing, excavation, borrow, or fill construction, to create a nuisance water swale, berms and trench covers in the areas specified on the project plans.

Clearing and grubbing, excavation, borrow, or fill construction shall be constructed per MAG Sections 201, 205, 210, and 211. These items are to be paid in full under this bid item, and no additional compensation will be given to the contractor for any necessary clearing and grubbing, excavation, borrow, or fill construction. Measurement per linear foot will be made for all unpaved areas to place, shape, compact and finish grade native earthen top soil.

Payment will be made at the unit price bid, and such payment shall be compensation in full for the swale complete in place.

Item 17 – Riprap Swale Detail 7, Sheet C2

This work consists of construction of riprap lined swale including the filter fabric lining to create the swale invert. The construction shall create a finished riprap surface to carry flow into the catch basin. The top of riprap edges shall match the adjacent grade.

Payment will be made at the unit price bid, and such payment shall be compensation in full for rip rap complete in place

Item 18 – Protect Fence in Place

This work consists of protecting from damage the existing fence identified in the project plans. The Contractor shall be responsible for the integrity of the fence until final acceptance of the work. Any portion of the fence found to be damaged by construction shall be repaired to the satisfaction of the Engineer by the Contractor at no additional expense to the City of Sedona.

Payment will be made at the contract unit price bid, which price shall be full compensation for the protection of fence in place per the project plans.

Item 19 – Protect Retaining Wall in Place

This work consists of protecting from damage the existing retaining wall identified in the project plans. The Contractor shall be responsible for the integrity of the wall until final acceptance of the work. Any portion of the wall found to be damaged by construction shall be repaired to the satisfaction of the Engineer by the Contractor at no additional expense to the City of Sedona.

Payment will be made at the contract unit price bid, which price shall be full compensation for the protection of retaining wall in place per the project plans.

Item 20 – Protect Building Wall and Footing in Place

This work consists of protecting from damage the existing building wall and footing identified in the project plans. The Contractor shall be responsible for the integrity of the building wall and footing until final acceptance of the

work. Any portion of the building wall and footing found to be damaged by construction shall be repaired to the satisfaction of the Engineer by the Contractor at no additional expense to the City of Sedona.

Payment will be made at the contract unit price bid, which price shall be full compensation for the protection of building wall and footing in place per the project plans.

Item 22 – Pipe Gate, Detail 8, Sheet C2

Work under this item shall consist of furnishing and installing a new black steel pipe gate with a “Private Property No Trespassing Sign” at the locations shown and dimensions shown on the project plans.

The pipe gate shall be anchored in concrete to hold with a 200 pound force across the top rail. The steel post shall be set in a minimum of 36-inches into 48-inches of Class B concrete.

The handrail shall be painted with two coats primer grey and one coat “Safari Brown” Pittsburgh Paints color #429-6. Reflective tape will be used at the corners at the direction of the Engineer. All weld areas shall be painted with one coat “Safari Brown” Pittsburgh Paints color #429-6.

Payment will be made at the contract unit price bid, which price shall be full compensation for the pipe gate with lock and sign as shown on the Detail 8, Sheet C2 within the project plans, complete-in-place and functioning, including excavation and backfill.

Item 23 – Handrail Detail 3, Sheet C2

Work under this item shall consist of furnishing and installing a new black steel handrail system at the locations shown and dimensions shown on the project plans.

The handrail shall be anchored to the concrete using a welding plate or socket system with the strength to hold with a 200 pound force across the top rail.

The handrail shall be painted with two coats primer grey and one coat “Safari Brown” Pittsburgh Paints color #429-6. Reflective tape will be used at the corners at the direction of the Engineer. All weld areas shall be painted with one coat “Safari Brown” Pittsburgh Paints color #429-6.

Payment will be made at the contract unit price bid, which price shall be full compensation for the handrail as shown on the Detail 3, Sheet C2 within the project plans, complete-in-place and functioning, including attachment to headwall.

Item 24 – 6” Aggregate Base Course

Work under this item shall be in accordance with MAG specifications Section 310. Materials shall conform to the requirements of MAG section 702. The aggregate base course shall not be placed on sub-grade until the City Engineer or his representative has accepted the sub-grade.

Payment will be made at the contract unit price bid, and such payment shall be compensation in full for the 6" aggregate base course complete in place.

Item 25 – 4-inch Asphaltic Concrete Surface Course (3/4 inch)

Placement and compaction of asphaltic concrete surface course shall be in accordance with MAG Section 321 and 322. Placement and compaction of material will be as a surface course for new pavement or as an overlay for existing pavement, as indicated on the plans. The surface course mix shall be a Marshall Mix Design in accordance with MAG Section 710.

The Contractor is responsible for submitting a mix design from an approved materials laboratory to the Construction Manager for review and approval. The Contractor shall submit written certification that the asphalt meets all requirements of MAG Section 710 for a 3/4-inch Marshall Mix Design. All other sampling and testing required shall be performed by the Contractor as part of the Quality Control program for the project.

Application of Emulsified Tack Coat Shall follow Section 329.3 of the MAG Standard Specifications is modified as follows: Tack coat shall be diluted in the proportion of 50 percent water and 50 percent emulsion and applied at the rate of 0.08 gallons per square yard. Application shall be made in advance of subsequent construction as ordered by the Engineer.

Payment for asphaltic concrete pavement will be made at the unit price bid, and such payment shall be compensation in full for the item complete in place including any and all associated cost for material and labor for tack coat applications which is deemed incidental to this and other asphaltic concrete pavement installation.

Items 26 – Replace Existing Survey Monuments

This item consists of an Arizona Licensed Surveyor replacing all the existing survey monuments to their original coordinates as shown on the project plans.

Payment will be made at the contract unit price bid, and such payment shall be compensation in full for the replacement of survey monuments complete in place.

Item 27 – Construction Coordination with Water Company and Dry Utility Companies

This work consists of coordination with the Water Company and their Contractor for the waterline re-alignment per Arizona Water Company

requirements and the Dry Utility Companies and their Contractor for the utility line re-alignments per their requirements.

Waterline relocation work shall be coordinated with the water company at Moonglow Drive. The water company will relocate the waterline as detailed on Project Plans. Once the contractor has removed the box culvert and headwalls and installed and backfilled the new dual 72" pipes, in this area, the water company, and their representing contractor shall be provided sufficient time to construct the new waterline (work and materials by water company), remove existing waterline, test, charge and ensure new waterline is operating, and demobilize from the area. All remaining waterline work, noted "by others" on Project Plans shall be as coordinated and scheduled between the contractor and the water company contractor, and shall comply with contract requirements.

Underground dry utility line re-location work shall be coordinated with the dry utility companies, at Moonglow Drive. The existing dry utility lines on the south side of Moonglow Drive are in conflict with the new dual 72" pipes. Once contractor has removed the box culvert and headwalls and installed and backfilled the new dual 72" pipes, in this area, the dry utility companies, and their representing contractor shall be provided sufficient time to construct the new conduit (supplied by utility companies), pull new utility lines, remove existing utility lines and conduits, charge, test, and ensure new utilities are operating, and demobilize from the area.

Items 28 – Remove Berm and Replace with Traffic Control at Road Crossings

This item consists of the full removal of the berms at north and south side of Lyric Drive and the south side of Windsong Drive and replacing them with boulders and a removable bollard as shown on Detail XX, Sheet CX of the Project Plans. The boulder size shall be approximately 24" wide by 24" tall by 48" long and nested 6" into the ground each side of the pipe leaving a minimum of 10' clear space. The removable bollard shall be placed in line with the boulders between the 72" CMP pipes and be per MAG Standard Detail 140.

Payment will be made at the contract unit price bid, and such payment shall be compensation in full for the item complete in place.

Item 29 – Remove Existing Culvert or part of Culvert

This work consists of the full removal and disposal of concrete, plastic, or metal culverts or storm drain pipes. Pipes shall be sawcut if portions are left in place. The void shall be replaced with fill material and shall be compacted to the MAG Standard Specification 601.

Payment will be made at the contract unit price bid, and such payment shall be compensation in full for the complete removal and disposal of this item.

Item 30 – Remove Existing 8’ by 7’ Concrete Box Culvert, Headwalls and Handrails

This item consists of the full removal and disposal of 8’ by 7’ concrete box culvert, concrete headwalls and handrails at the locations shown on the project plans. The void shall be replaced with fill material and shall be compacted per MAG Standard Specification. Handrails shall be salvaged and returned to City or reused on the new inlet structure.

Payment will be made at the contract unit price bid, and such payment shall be compensation in full for the complete removal and disposal of this item.

Item 31 – Remove Existing AC Pavement

This work shall consist of sawcutting, removal and disposal of existing asphaltic concrete pavement, regardless of thickness, where indicated on the plans.

Payment will be made at the contract unit price bid, and such payment shall be compensation in full for the complete removal and disposal of this item.

Item 32 – Remove Existing Tree

This work consists of the removal and disposal of trees 4-inch in trunk caliper diameter at a point 3 feet above the root ball or larger. Trees in confined areas may require drag lines, partial trimming or cut in parts due to safety. The void shall be replaced with fill material and shall be compacted to the MAG Standard Specification 601.

Payment will be made at the contract unit price bid, and such payment shall be compensation in full for the complete removal and disposal of this item.

Item 33 – Remove Existing Vegetation

This item also consists of the removal and disposal of all debris, trees (whatever the diameter) and shrubs within the drainage easement located on Lots 1, 2 and 3 of the side channel as shown on Sheet C4 of the Project Plans. The existing garden fence within the within the drainage easement on Lot 3 is to be removed and relocated to the north line of the drainage easement. Once the 30” CMP is installed the area shall be graded per the Project Plans.

Payment will be made at the contract unit price bid, and such payment shall be compensation in full for the complete removal and disposal of this item.

Item 34 – Remove Existing Concrete Headwall, Handrails, Pipe Trash Rack and Shotcrete Inlet

This item consists of the full removal and disposal of concrete headwall, foundation, handrails, pipe trash rack and shotcrete inlet and wingwalls at the location shown on the project plans. Salvage existing trash rack to use

on new concrete inlet structures. The void shall be replaced with fill material and shall be compacted to the MAG Standard Specification 601.

Payment will be made at the contract unit price bid, and such payment shall be compensation in full for the complete removal and disposal of this item.

Item 35 – Remove Existing Concrete and Rock Headwall and Concrete Channel

This item consists of the full removal and disposal of concrete and headwall, foundation, and concrete channel at the location shown on the project plans. The void shall be replaced with fill material and shall be compacted to the MAG Standard Specification 601.

Payment will be made at the contract unit price bid, and such payment shall be compensation in full for the complete removal and disposal of this item.

Item 36 – Remove Existing Concrete Rock/Block Wall

This item consists of the full removal and disposal of concrete rock/block retaining wall at the locations shown on the project plans.

Payment will be made at the contract unit price bid, and such payment shall be compensation in full for the complete removal and disposal of this item.

Item 37 – Remove Existing Concrete Erosion Control

This item consists of the full removal and disposal of concrete erosion control at the locations shown on the project plans.

Payment will be made at the contract unit price bid, and such payment shall be compensation in full for the complete removal and disposal of this item.

Item 38 – Sawcut, Curb & Gutter, Grading, Core Drilling and Rip Rap

This work consists of sawcutting no more than 6” of pavement on Windsong Drive to provide a clean edge to construct roll curb and gutter per MAG Standard Detail 220-1 Type C, curb transition (roll curb and gutter to ribbon curb) and ribbon curb per MAG Standard Detail 220-1 Type B. The area behind the curb shall be graded back to existing in five (5) feet. A six (6) inch diameter hole shall be core drilled into west side of existing catch basin and rip rap installed adjacent to allow for nuisance storm water runoff to drain. Work shall be performed as shown on Windsong Drive Improvements Detail on Sheet C4 of the Project Plans.

Payment will be made at the contract unit price bid, and such payment shall be compensation in full for this item complete in place.

Item 39 – Stormwater Pollution Prevention Plan

This work consists preparing and implementing a stormwater pollution prevention plan in accordance with the Sedona City Code, Chapter 14.

Item 40 – Protect Pipe against Stormwater Damage

This work consists protecting the installed pipe from storm water damage during the installation and construction of the improvements.

Item 41 – Mobilization

The City shall compensate the Contractor for a one time mobilization of the contractor's personnel equipment, supplies and incidentals, establishment of offices, buildings and other facilities, required for the performance of the work on the project, as well as preparatory work and operations prior to the commencement of the work on the project site.

Payment for mobilization shall be per General Conditions Section 33.

Item 42 – Demobilization

The City shall compensate the Contractor for a one time demobilization of the contractor's personnel equipment, supplies, incidentals, offices, buildings and other facilities upon completion of the work on the project site.

Payment for demobilization shall be per General Conditions Section 33.

Item 43 – Traffic Control

This item shall consist of preparing traffic control plans and getting them approved by the City of Sedona for areas within City Right-of-Way. The Traffic Control Plan provided in the plans is a recommendation only. A separate and more detailed set of Construction Traffic Control Plans shall be provided by the Contractor and approved by the City a minimum of 3 business days prior to the start of any activity. This item shall also consist of providing traffic control devices, arrow-boards, variable message signs, barricades, flagmen, and pilot cars if necessary consistent with the approved traffic control plans. This work shall be in conformance with Section 2.9, "TRAFFIC REGULATIONS" of the Contract's General Terms and Conditions. Payment for Traffic Control will be on a lump sum basis with the payment amount being prorated (overall project percent completion) over the project's duration.

Item 44 – Clear and Grub

This work consists of clearing shrubs, groundcovers and trees less than 6-inch caliper per MAG Section 201 as shown on the Project Plans.

Item 45 – QA/QC Testing and Conformance

This work consists of the testing of the compaction and material conformance as provided herein and in accordance with MAG Part 100 – General Conditions.

Item 46 – Construction Staking, Surveying and Layout

The work under this item shall consist of furnishing all materials, equipment, and labor necessary for providing construction survey, layout, and staking.

This item must comply with Section 1.10, Construction Survey, of this Contract's Technical Specifications. Payment for Survey, Layout and Staking will be based on a unit cost lump sum basis. Payment for this item will be prorated (overall project percent completion) over the project's duration.

Item 47 – As-built Plans Preparation:

The work under this item shall consist of furnishing all materials, equipment, and labor necessary for providing construction survey, field measurements, and competent status as-built plans. This item must comply with Section 1.10, Construction Survey, of this Contract's Technical Specifications. Payment for Survey, Field Measurements and As-built Documents will be based on a unit cost lump sum basis. Payment for this item will be prorated (overall project percent completion) over the project's duration. Half of the payment for this item will be pro-rated (overall project percent completion) over the projects duration. The remaining half will be payable upon submission of stamped/approved as-built plans.

3.0 MISCELLANEOUS WORK

3.1 Potholing

All utility potholing in existing paved streets shall be done using the air/vacuum type method. Dimensions for the potholing pavement cuts shall be limited to 12 inch by 12 inch square holes. All potholes shall be backfilled and patched in accordance with MAG Detail No. 212. Backfill material shall be 1-sack CLSM per MAG Spec Sec 728. Asphalt concrete pavement replacement shall use the same Marshall hot mix A.C Pavement as described on the plans. Asphalt thickness shall be 6-in minimum or match existing, whichever is greater. Asphalt shall be placed and compacted in 2-in lifts. The asphalt patch shall be crack sealed afterward. Where potholes are done outside of the roadway pavement, all excavated materials shall be replaced resulting in conditions equal to or better than those prior to pothole work. Measurement shall be per each pothole. Payment will be made at the unit price bid per each pothole made, backfill, compaction and pavement replacement. This is an incidental item and there will be no separate payment for pot-holing.

3.2 Trench Plates

All trenching must be safely secured and barricaded at all times. Overnight trenching involving street cuts shall be steel plated in accordance with MAG Standard Detail No. 211. Steel plate installation shall be Type 2 (milled in) for arterial and collector streets. Type 1 (ramped) shall be allowed on local streets only. Plates are only allowed for a maximum period of five (5) business days after which the street must be permanently patched. Temporary asphalt patching, if allowed by the Engineering Inspector, is only allowed for a maximum period of five (5) business days after which the street must be permanently patched. This

is an incidental item and there will be no separate payment for trench plates.

General Conditions

2013

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GENERAL CONDITIONS

1. CONTENTS

The following Contract Provisions are general in scope and may refer to conditions, which will not be encountered in the performance of the work, included in this Contract and which are not applicable thereto. Any requirements, provisions or other stipulation of these General Conditions, which pertain to a non-applicable condition, shall be excluded from the scope of the Contract. Where conflict appears, "Special Condition" shall take precedence over "General Conditions". Full compensation for compliance with these General Conditions shall be considered as included in the total and various bid items of the contract and the contract time.

2. DEFINITIONS AND TERMS

When the Contract indicates that work shall be "accepted, acceptable, approve, authorized, condemned, considered necessary, contemplated, deemed necessary, designated, determined, directed, disapproved, established, given, indicated, insufficient interpreted, ordered, permitted, rejected, required, reserved, satisfactory, specified sufficient, suitable, suspended, unacceptable, unsatisfactory," it shall be understood that these expressions are followed by the words "by the City of Sedona".

Wherever the following abbreviations, terms, or pronouns are used in the specifications, plans, or other Contract Documents, the intent and meaning shall be interpreted as follows:

ABBREVIATIONS

AAN	American Association of Nurserymen
AAR	Association of American Railroads
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
ADOT	Arizona Department of Transportation
AGC	Associated General Contractors of America
AI	Asphalt Institute
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
AITC	American Institute of Timber Construction
ANSI	American National Standards Institute, Inc.
ARA	American Railway Association
AREA	American Railway Engineering Association
ARTBA	American Road and Transportation Builders Association
ASCE	American Society of Civil Engineers
ASLA	American Society of Landscape Architects
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
ATSSA	American Traffic Safety Services Association
A WG	American Wire Gauge
AWPA	American Wood Preservers' Association

AWS	American Welding Society
AWWA	American Water Works Association
CRSI	Concrete Reinforcing Steel Institute
EIA	Electric Industries Association
FHWA	Federal Highway Administration, Department of Transportation
FSS	Federal Specifications and Standards
IEEE	Institute of Electrical and Electronics Engineers
IES	Illuminating Engineering Society
IMSA	International Municipal Signal Association
IPCEA	Insulated Power Cable Engineers Association
ITE	Institute of Transportation Engineers
MAG	Maricopa Association of Governments
MIL	Military Specifications
MUTCD	Manual on Uniform Traffic Control Devices
NEC	National Electrical Code
NEMA	National Electrical Manufacturers' Association
NIST	National Institute of Standards and Technology
NSF	National Sanitation Foundation (NSF)
SAE	Society of Automotive Engineers
UL	Underwriters Laboratories, Inc.

ADVERTISEMENT - A public announcement inviting proposals for work to be performed or materials to be furnished.

AWARD - The acceptance by the City of a proposal.

BASIS OF PAYMENT - The terms under which "work" is paid, as a designated pay item in accordance with the quantity measured and the pay unit.

BIDDER - Any individual, partnership, joint venture, firm or corporation submitting a proposal for the advertised work, acting directly or through a duly authorized representative.

CALENDAR DAY - Each and every day shown on the calendar, beginning and ending at midnight.

CERTIFIED INVOICE - An invoice from a supplier which has been reliably endorsed by the Contractor guaranteeing that the material was purchased and received for the project and establishing the value of the material.

CLAIM - A written demand or request for additional compensation or additional time submitted to the Engineer that:

- A. Contains the words "This is a claim...", within its Subject line or the first paragraph
- B. Cites the contractual basis for the demand or request
- C. Relates the Contractual basis cited to factual events occurring or that have occurred within the project.

COMPLETION DATE - The date on which the contract work is specified to be completed

CONTRACT ITEM (PAY ITEM) - A specifically named unit of work for which a price is provided in the Contract. The description, whether general or detailed, the content of the named unit of work shall be as per the project plans and specifications.

CONTRACT CHANGE ORDER - A written order issued to the Contractor by the City covering extra work, additions or alterations to the plans and specifications, and establishing the basis of payment and time adjustment for the work affected by the changes. The Contract Change Order is the only method authorized for changing the Contract.

CONTRACT DOCUMENTS - The following comprise the Contract Documents: Advertisement for Bids, Information for and Instructions to Bidders, Bid Proposal and Bid Guarantee Bond, Construction Contract, Change Orders, Addenda, Performance Bond, Labor and Material Payment Bond, Special Conditions, General Conditions, Technical Specifications, Notice of Award, Notice to Proceed, Drawings, Plans, Standard Specifications and Certificate of insurability. All of these documents together constitute the **CONTRACT**.

CONTRACT TIME - The number of calendar days allowed for the entire completion of the Contract, including authorized time extensions and work required to be complete after substantial completion. Where a calendar date of completion is specified, the Contract shall be completed on or before that date.

CONTRACTOR - Party contracting directly with the City to furnish and perform all work and services in accordance with the Contract Documents.

COUNTY - The County in which the work is to be done.

DAY - Unless otherwise defined shall mean "calendar" day.

ENGINEER - The City Engineer; or his designated representative.

EXTRA WORK - Work not provided for in the Contract as awarded but determined by the City to be essential to the satisfactory completion of the Contract within its intended scope.

FINAL ACCEPTANCE - The acknowledgment by the City that the project or the work has been completed in accordance with the Contract Documents and provides the date at which the warranty or guarantee period begins.

GENDER AND NUMBER - References are made as if masculine in gender and singular in number unless neuter gender is appropriate in the context; however, the use of any gender shall be applicable to all genders and the use of singular number shall include the plural and conversely.

INSPECTOR - A person, persons, or firm authorized by the Engineer to make detailed reviews, observations, reports and determinations of contract performance.

MAY - Used to refer to permissive actions.

METHOD OF MEASUREMENT - The manner in which a pay item is measured to conform with the pay unit.

NOTICE OF CLAIM - A written notification submitted to the Engineer that a demand or request for additional compensation or additional time may be made. The notification shall

1. Contain the words “notification of a potential claim” within its Subject line or the first paragraph
2. Describe the occurrence which is the reason that the Notice of Claim is being presented

NOTICE TO PROCEED - Written notice to the Contractor to proceed with the contract work including, when applicable, the date of beginning of contract time. Start of Construction, as defined below, may start at a later date.

PLANS - The drawings and pictures depicting the location and special orientation of the work to be done.

PROJECT - The work to be completed pursuant to this contract.

PROPOSAL - A standard form plus information supplied by the City, which contains spaces for completion by the Bidder which, when completed in its entirety and executed by the Bidder, along with all required additional documents, shall constitute the Bid. Said Bid shall constitute the Contractor's offer to perform all Work required as set forth in the Contract Documents for the amount of money stated in the Bid.

PROPOSAL FORM - The documents furnished by the City on which the offer of a bidder is submitted.

PROPOSAL GUARANTY - The security furnished with a proposal to Guaranty that the bidder will enter into the Contract if the proposal is accepted.

RIGHT OF WAY - A general term denoting land, property, or interest therein, acquired for or devoted to the construction of an improvement.

SALVABLE MATERIAL - Material that can be saved or salvaged. Unless otherwise designated or directed by the City or shown on the plans, all salvable material shall become the property of the Contractor.

SAMPLES - Samples are physical examples furnished or constructed by the Contractor to illustrate materials, equipment, workmanship or finishes, and to establish standards by which the Work will be judged.

SHALL - Refers to mandatory actions by either the Contractor or the City.

SHOP DRAWINGS - Drawings, diagrams, illustrations, certificates, test reports, schedules, performance charts, brochures, shop layouts, fabrication layouts, assembly layouts, foundation layouts, wiring and piping layouts, specifications and descriptive literature required by the Contract Documents which the Contractor is required to submit for approval.

START OF CONSTRUCTION – The date in which the Contractor begins physical work at the project site. Restrictions on start of construction are provided in the General Conditions and may be specified in the Special Conditions.

SUBCONTRACTOR - Party supplying labor and/or material for work at the site of the project for, and under separate contract or agreement with, the Contractor. Nothing contained in the Contract Documents shall create any contractual relationship between the City and any subcontractor.

SUBSTANTIAL COMPLETION - The date when the work is sufficiently completed so it may be safely, conveniently, and beneficially utilized by the City for all of the purposes for which it was intended. Reduced liquidated damages are chargeable for a project or portions thereof which have separately specified damages, if there are items of work remaining to be performed relative to such work once full substantial completion status has been attained. In such cases the amount of liquidated damages due shall be twenty-five percent (25%) of the unreduced liquidated damage amount stated in the contract.

SUPERINTENDENT - The Contractor's authorized representative in charge of the Work.

WORK - The furnishing of all labor, materials, equipment, and all other incidentals necessary to the successful and acceptable completion of all obligations as described in the Contract Documents, and the carrying out of all of the duties and obligations imposed by the Contract.

3. CONTRACTOR'S UNDERSTANDING

- A. It is understood and mutually agreed that by submitting a proposal, the Contractor acknowledges that he has carefully examined all documents pertaining to the Work, the locations, accessibility, and general character of the site of the Work and all existing buildings and structures within and adjacent to the site, and has satisfied himself as to the nature of the Work, the condition of existing buildings and structures, the conformation of the ground, subsurface conditions, the character, quality, and equipment, machinery, plant, and any other facilities needed preliminary to and during prosecution of the Work, the general and local conditions, the construction hazards, and all other matters, including but not limited to any labor situation which can in any way affect the Work under the Contract. It is further mutually agreed that by submitting a proposal, the Contractor acknowledges that he has satisfied himself as to the feasibility and correctness of the Contract Documents for the construction of the Work and that he accepts all the terms, conditions, and stipulations contained therein; and that he is prepared to work in peace and harmony with other Contractors performing work on the site.
- B. No verbal agreement or conversation with any officer, agent, or employee of the City, either before or after the execution of the Contract, shall affect or modify any of the terms, conditions, or other obligations set forth in any of the Contract Documents.
- C. The Contractor understands that, unless specifically stated otherwise in the contract documents, the intent of the contract documents is to provide complete and operable facilities. The Contractor's bid amount for this project, therefore, shall be and is considered to be for completion in conformity with this understanding, regardless of whether some aspect of the work to be performed is named as a separate bid item or not.

4. DEFECTIVE WORK

- A. A City Representative, designated by the City Engineer, shall give written notice of the noncompliance to the Contractor, when, and as often as the City Representative determines

through his inspection that procedures, material, equipment or workmanship incorporated in the Project does not meet the requirements of the Contract. Within five (5) days from the receipt of such notice, the Contractor shall undertake the work necessary to correct such deficiencies, and to bring the work into compliance with the Contract Documents. Should the Contractor not agree with the City Representative's determination, and as a condition precedent to any request for either additional compensation or time extension, or both, resulting from the City Representative's determination, the Contractor shall within three (3) days provide a Notice of Claim to the Engineer that he may claim additional compensation, time or both, and detailed explanation of the Contractor's position. The Contractor shall document the costs associated with the corrective work with daily records and cost data and shall furnish such information to the Inspector daily. Receipt of cost data shall not be construed to be an acceptance of the corrective work, or an authorization for a Change Order to cover the corrective work. Failure by the Contractor to provide the specified written notice of an intention to make a claim shall be sufficient basis to reject any related claim subsequently submitted.

- B. Prior to initial acceptance of the Project, the City may, at its option, retain work, which is not in compliance with the Contract if the City determines that such defective work is not of sufficient magnitude or importance to make the work dangerous or undesirable. The City also may retain defective work, if in the opinion of the Inspector, and with concurrence of the City Engineer, removal of such work is impractical or will create conditions, which are dangerous or undesirable. Just and reasonable value, for such defective work, shall be judged, by the Engineer and appropriate deductions shall be made in the payments due, or to become due to the Contractor. Initial acceptance shall not act as a waiver of the City's right to recover from the Contractor an amount representing the deduction for retention of defective work.

5. NOTICE AND SERVICE THEREOF

Where the manner of giving notice is not otherwise provided for in the Contract Documents, any notice to the Contractor from the City relative to any part of the Contract shall be in writing and considered delivered and the service thereof completed, when said notice is posted to the Contractor at the address given in the Contractor's proposal, or at the last business address known to the City, or delivered in person to the Contractor or his authorized representative on the site or transmitted electronically by facsimile or electronic mail using phone numbers and addresses last provided by the Contractor. It is mutually agreed that such notice shall be sufficient and adequate. The Contractor shall provide the City, upon written request, facsimile phone numbers and electronic mail addresses, in writing.

6. MATERIAL AND EQUIPMENT SPECIFIED BY NAME

When material or equipment is specified by reference to one or more patents, brand names, or catalog numbers, it shall be understood that this is referenced for the purpose of defining the performance or other salient requirements, and that other materials or equipment, of equal capacities, quality and function may be considered. The Contractor may offer material or equipment of equal or better quality and performance in substitution for those specified which he considers would be in the City's interest to accept. After the Award of the Contract, the City will consider offers for substitution only from the Contractor and will not acknowledge or consider such offers from suppliers, distributors, manufacturers, or Subcontractors.

Substitutions

The Contractor's offer of substitution shall be made in writing to the Engineer and shall include sufficient data to enable the Engineer to assess the acceptability of the material or equipment for the particular application and requirements. If the offered substitution necessitates changes to or coordination with other portions of the work, the data submitted shall include drawings and details showing such changes. Contractor agrees to perform these changes as part of the substitution of material or equipment. Within thirty (30) calendar days after the receipt of the offer of substitution, the Engineer will review the material submitted by the Contractor and notify the Contractor if approved for use or objections, if any, to the proposed substitution or if further information is required. Upon notification by the Engineer, the Contractor shall either provide the approved material or equipment, which complies with project specifications, or furnish requested additional information. While the Engineer might not take any objections to the proposed substitution and may approve the same, such action shall not relieve the Contractor from responsibility for the efficiency, sufficiency, quality and performance of the substitute material or equipment, in the same manner and degree as the material and equipment specified by name. Any cost differential associated with a substitution shall be reflected in the Contractor's offer of substitution and the Contract Documents shall be modified by a Change Order.

When the specifications state the construction shall be performed by the use of certain methods and equipment, such methods and equipment shall be used unless other methods are authorized by the Engineer. If the contractor desires to use a method or type of equipment other than those specified, he may request authority from the Engineer to do so. The request shall be in writing and shall include a full description of the method and equipment proposed to be used and an explanation of the reasons for desiring to make the change. If approval is given it will be on the condition that the Contractor will be fully responsible for producing construction work in conformity with the Contract Documents. If material or equipment is specified by only one patent or proprietary name, or by the name of only one manufacturer, it is for the purpose of standardization, or because the City knows of no equal. If standardization is the reason for using one name to specify any material or equipment, the specifications will so state, and substitutions will not be considered. In other cases, the Contractor may offer substitutions in the same manner as requesting a Change Order for products he considers being equal to those specified.

7. CONTRACT BONDS AND GUARANTEES

- A. The Contractor shall provide two surety bonds on the forms provided, each in an amount equal to 100% of the contract price. One shall serve as security for the faithful performance of the work and the other as security for the faithful payment and satisfaction of the persons furnishing materials and performing labor on the work. The bonds shall be issued by a corporation duly and legally licensed to transact surety business in the State of Arizona. Such bonds shall remain in force throughout the period required to complete the work and thereafter for a period of 365 calendar days after final acceptance of the work, plus 365 calendar days following the repair of any work pursuant to the guarantees herein made. The surety's liability on the bonds shall not exceed the underwriting limitations for the respective surety specified in Circular 570, published by the United States Department of the Treasury.
- B. Should any surety or sureties be deemed unsatisfactory at any time by the City, notice will be given to the Contractor to that effect and he shall forthwith substitute a new surety or sureties satisfactory to the City. No further payment shall be deemed due or will be made under this Contract until the new surety shall qualify and be accepted by the City.

- C. The Contractor guarantees to the City that all materials and equipment furnished under this Contract will be new and of good and sufficient quality, free from faults and defects as is necessary to complete the project as required by the Plans and Specifications.

8. INSURANCE

- A. The Contractor, at Contractor's own expense, shall purchase and maintain the herein stipulated minimum insurance with companies duly licensed, possessing a current A.M. Best, Inc. Rating of B+6, as minimum and approved and licensed to do business in the State of Arizona with policies and forms satisfactory to the City.
- B. All required insurance herein shall be maintained in full force and effect until all work required to be performed under the terms of the Contract is satisfactorily completed and finally accepted - failure to do so may, at the sole direction of the City, constitute a material breach of this Contract.
- C. The Contractor's insurance shall be primary insurance, and any insurance or self-insurance maintained by the City shall not contribute to it.
- D. Any failure to comply with the claim reporting provisions of the policies or any breach of an insurance policy warranty shall not affect coverage afforded under the policy to protect the City.
- E. The policies, except Workers' Compensation, shall contain a waiver of transfer rights of recovery (subrogation) against the City, its agents, officers, officials and employees for any claims arising out of the Contractor's work or service.
- F. The insurance policies may provide coverage, which contains deductibles or self-insured retentions. Such deductible and/or self-insured retentions shall not be applicable with respect to the coverage provided to the City under such policies. The Contractor shall be solely responsible for deductible and/or self-insured retention and the City, at its option, may require the Contractor to secure the payment of such deductible or self-insured retentions by a surety bond or an irrevocable and unconditional letter of credit.
- G. The City reserves the right to request and to receive, within 10 working days, certified copies of any or all of the herein required insurance policies and/or endorsements. The City shall not be obligated, however, to review same or to advise Contractor of any deficiencies in such policies and endorsements, and such receipt shall not relieve Contractor from, or be deemed a waiver of, the City's right to insist on strict fulfillment of Contractor's obligations under this Contract.
- H. The insurance policies, except Workers' Compensation, required by this Contract shall name the City, its agents, officers, officials and employees as Additional insured's.
- I. The making of progress payments to the Contractor shall not be construed as creating an insurable interest by or for the City or be construed as relieving the Contractor or his Subcontractors of responsibility for direct physical loss, damage or destruction occurring prior to final acceptance.

- J. Any insured loss under the policies of insurance required by this Agreement shall be adjusted with the City and made payable to City for the insured, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph K of this Article of these General Conditions. City shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged work shall be repaired or replaced, the moneys so received shall be applied on account thereof, and the work and the cost thereof shall be covered by an appropriate Change Order.
- K. City shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within fifteen (15) days after the occurrence of loss to City's exercise of this power. If such objection were made, City shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If required in writing by any party in interest, City shall upon the occurrence of an insured loss, give bond for the proper performance of these duties
- L. If City finds it necessary to occupy or use a portion or portions of the work prior to substantial completion of all of the work, such use or occupancy may be accomplished as provided in these General Conditions, provided that no such use or occupancy shall commence before the insurers providing the property insurance have acknowledged notice thereof and in writing effected the changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or lapse on account of any such partial use or occupancy.
- M. **REQUIRED COVERAGE**

The Contractor shall obtain for itself and provide the City with Certificates of Insurance indicating the scope and extent of coverage as set forth below. Required coverage's may be modified by an amendment to the Contract Documents.

1. **GENERAL LIABILITY**

Contractor shall maintain Commercial General Liability insurance with a limit of not less than \$3,000,000 for each occurrence with a \$3,000,000 Products and Completed Operations Aggregate and \$3,000,000 General Aggregate Limit. The policy shall include coverage for bodily injury, broad form property damage, personal injury, products/completed operations and blanket contractual coverage including, but not limited to, the liability assumed under the indemnification provisions of this Contract, which coverage will be at least as broad as Insurance Service Office, Inc. Policy Form CG 000211093 or a11y replacement thereof. The coverage shall not exclude X, C, U.

Such policy shall contain a severability of interest provision, and shall not contain a sunset provision or commutation clause, or any provision, which would serve to limit third party action over claims.

The Commercial General Liability additional insured endorsement shall be at least as broad as the Insurance Service Office, Inc.'s, Additional Insured, Form B, CG20101185, and shall include coverage for Contractor's operations and products and completed operations.

If required by this Contract, the Contractor subletting any part of the work, services or operations awarded to the Contractor shall purchase and maintain, at all times during prosecution of the work, services or operations under this Contract, an Owner and Contractor's Protective Liability insurance policy for bodily injury and property damage, including death, which may arise in the prosecution of the Contractor's work, service or operations under this Contract. Coverage shall be on an occurrence basis with a limit not less than \$3,000,000 per occurrence, and the policy shall be issued by the same insurance company that issues the Contractor's Commercial General Liability Insurance.

2. **AUTOMOBILE LIABILITY**

Contractor shall maintain Commercial Business Automobile Liability insurance with a combined single limit for bodily injury and property damage of not less than \$1,000,000 each occurrence and \$2,000,000 for more than one person and property damage in the sum of not less than \$1,000,000 resulting from any one accident which may arise from the operation, actions or omissions of the Contractor or any Subcontractor in the performance of the project, and with respect to the Contractor's owned, hired, and non-owned vehicles assigned to or used in performance of the Contractor's work. Coverage will be at least as broad as coverage code 1, "any auto", (Insurance Service Office, Inc. Policy Form CA 00011293, or any replacements thereof). Such insurance shall include coverage for loading and off loading hazards. If hazardous substances, materials or wastes are to be transported, MCS 90 endorsement shall be included and \$5,000,000 per accident limits for bodily injury and property damage shall apply.

3. **WORKERS' COMPENSATION**

The Contractor shall carry Workers' Compensation insurance to cover obligations imposed by federal and state statutes having jurisdiction of Contractor's employees engaged in the performance of the work; and, Employer's Liability insurance of not less than \$1,000,000 for each accident, \$1,000,000 disease for each employee, and \$1,000,000 disease policy limit.

In case any work is subcontracted, the Contractor will require the Subcontractor to provide Workers' Compensation and Employer's Liability to at least the same extent as required of the Contractor.

The Contractor shall furnish the City with a Certificate of Waiver of Subrogation under the terms of the Workmen's Compensation insurance. The Contractor shall defend, protect, and save harmless the City from and against all claims, suits, and actions arising from failure of the Contractor or the Subcontractor to maintain such insurance.

4. **BUILDERS' RISK (PROPERTY) INSURANCE**

The Contractor shall purchase and maintain, on a replacement cost basis, Builders' Risk insurance in the amount of the initial Contract Amount as well as subsequent modifications thereto for the entire work at the site. Such Builders' Risk insurance shall be maintained until final payment has been made or until no person or entity other than the City has an insurable interest in the property required to be covered, whichever is earlier. This insurance shall include interests of the City, the Contractor, and all Subcontractors and Sub-Subcontractors in the work during the life of the Contract and course of construction, and shall continue until the work is completed and accepted by the City. The insurance shall cover work performed under the Contract and materials, equipment or other items to be incorporated therein, while the same are located at the

construction site, stored off-site, or at the place of manufacture. The policy shall cover not less than losses due to fire, mischief, weather, vandalism, malicious mischief, wind, collapse, riot, aircraft, smoke or any other casualty, including but not limited to earthquakes, tornadoes or other cataclysmic events, until the date of initial acceptance of the work. For new construction projects, the Contractor agrees to assume full responsibility for loss or damage to the work being performed and to the buildings under construction. For renovation construction projects, the Contractor agrees to assume responsibility for loss or damage to the work being performed at least up to the full Contract Amount unless otherwise required by the Contract Documents or amendments thereto.

Builders' Risk insurance shall be on an all-risk policy form and shall also cover false work and temporary buildings and shall insure against risk of direct physical loss or damage from external causes including debris removal, demolition occasioned by enforcement of any applicable legal requirements, and shall cover reasonable compensation for Architect's service and expenses required as a result of such insured loss and other " soft costs" as required by the Contract.

Builders' Risk insurance must provide coverage from the time any covered property becomes Contractor's control and/or responsibility, and continue without interruption during construction or renovation or installation, including any time during which the covered property is being transported to the construction installation site, and while on the construction or installation site awaiting installation. The policy will provide coverage while the covered premises or any part thereof are occupied. Builders' Risk insurance shall be primary and not contributory.

If the Contract requires testing of equipment or other similar operations, at the option of the City, the Contractor will be responsible for providing property insurance for these exposures under a Boiler Machinery insurance policy.

The maximum deductible allowable under this policy shall be \$5,000. The policies providing this insurance shall name the City, its agents and attorneys, the City Engineer, and the Design Engineer as additional insured as their respective interests shall appear.

5. **BLASTING INSURANCE:**

If the Contractor determines that the performance of the project will require use of explosives, the public liability and property damage insurance shall specifically cover all liability arising out of the Contractor's acquisition, storage and use of explosives. If work requiring use of explosives is not discovered until after the commencement of the work, upon discovery, the Contractor shall immediately procure blasting insurance as required by this paragraph. The Contractor shall not undertake any blasting without submission to the City of a Certificate of Insurance covering all liability due to blasting regardless of amount. Any delays incurred by the Contractor in procuring blasting insurance shall not be grounds for an extension of time for completion of the project, nor for any additions to the contract price.

6. **OTHER INSURANCE:**

The Contractor shall carry and maintain all other insurance including Flood Insurance as may be required by Federal, State, County and City laws or ordinances. The Contractor may be required to, at the discretion of the City, maintain additional fire and extended

coverage with an endorsement for vandalism and malicious mischief in his name and also in the name of the City in an amount of not less than \$100,000.00.

The Contractor may utilize up to \$2,000,000 in excess liability coverage to meet the above-required limits for insurance. Any deductibles shall be declared and the City may require deposits be made to it up the amount of such deduction, at its sole discretion.

7. CERTIFICATES OF INSURANCE

Prior to commencing Services under this Contract, Contractor shall furnish the City with Certificates of Insurance, or formal endorsements as required by the Contract, issued by Contractor's insurer(s), as evidence that policies providing the required coverage's, conditions and limits required by this Contract are in full force and effect.

All Certificates of Insurance required by this Contract shall be identified with a bid serial number and title. A \$25.00 administrative fee shall be assessed for all Certificates received without the appropriate bid serial number and title. Each of the Certificates of Insurance shall contain a clause substantially in the following words:

It is hereby understood and agreed that if this policy is canceled, a written notice of such cancellation shall be mailed to the City of Sedona within ten (10) working days.

Such insurance coverage obtained by the Contractor other than Workmen's Compensation Coverage, shall name the City, the City Engineer, the Design Engineer, and their directors, officers, principals, agents, attorneys, and employees as Additionally Insured.

Insurance evidenced by these certificates shall not expire, be canceled, or materially changed without fifteen (15) days prior written notice to the City.

All certificates of insurance and endorsements required to be purchased by Contractor pursuant to this Article shall be filed with the City. Certificates shall be acceptable to City. If a policy does expire during the life of the Agreement, a renewal certificate of the required coverage must be sent to the City not less than five days prior to expiration date.

Each certificate of insurance shall include the job site and project number. Coverage shown on certificate of insurance must coincide with the requirements in the text of the Contract Documents.

9. SCHEDULE OF CONSTRUCTION

- A. The Contractor shall submit to the City within five (5) days after award of Contract, or as may be otherwise requested by the City, a schedule showing the order in which the Contractor proposes to carry on the Work and at a rate sufficient to successfully construct all of the Work set forth in the Contract Documents within the Contract Period. Such schedule shall show the dates at which the Contractor will start and complete the several parts of the Work. The schedule shall identify the following items if applicable:

1. Potholing.
2. Mobilization.
3. Roadway work to be broken down at a minimum, on a street by street basis.

4. Pipeline work to be broken down on a manhole to manhole basis and individual pump station construction or abandonment.
5. Site prep.
6. Drainage improvements prep and construction.
7. Ramp prep, construction and finish.
8. Sidewalk prep, construction and finish.
9. Bridge prep, abutment construction, bridge construction, bridge placement, and finish.
10. Traffic control.
11. Demobilization
12. SWPPP.
13. Other items as applicable and/or listed in the bid schedule.

The schedule shall also show the order of construction and delivery dates at which the Contractor will start and complete the several other parts of the Work, the order of construction and delivery dates of critical materials and equipment along with monthly payment estimates, dates for submittal of working drawings and shop drawing to the Engineer for review, and the name of the project superintendent. The City shall be notified in writing of changes in the project superintendent. The schedule shall be subject to review and comment by the City as per MAG specifications section 108.4. The schedule shall be binding on the Contractor and shall be complied with by the Contractor unless, for good cause shown, a modification of the schedule shall be requested in writing to and approved by the City. The schedule shall also:

1. Be updated at least once each 30 days and presented to the City as the current schedule.
2. Show work tasks progress in time periods of seven days or less unless otherwise approved by the Engineer.
3. Identify the critical path(s) for the work and task float.
4. Identify tasks corresponding to bid item descriptions when possible. Less comprehensive task designations may be used to comply with 2 above.
5. Conform to any time and location constraints identified in permits and the contract documents.
6. Span the current contract date to the end of the contract time.

The schedule format (size, color, type format) shall be such that the different tasks, durations, critical path and durations can be easily distinguished. The Contractor shall also provide a listing of tasks and durations with the schedule. If the schedule and list is being provided prior to a Notice to Proceed it need not include dates for start and completion of tasks. Any schedule and list provided after the Notice to Proceed has been issued shall include dates. A schedule and list shall be provided on the date of the Notice to Proceed. The Contractor shall begin work on the project site within 5 days of the Notice to Proceed, unless stated otherwise in specifications. Failure to do so is sufficient cause for termination in addition to other remedies the City may have.

- B. Where the City's operations require specific sequencing of the work, such sequencing requirements as provided for in the Contract Documents shall be followed.
- C. When progress has not kept pace within two weeks of the schedule or if otherwise requested by the City the Contractor shall update his schedule within 7 days of the City's

written request. The revised schedule will include a description of what actions will be done by the Contractor to bring the project back on schedule. **Failure to not provide a revised schedule within one week of its request will result in the withholding of \$750 from any progress payment due.** If the updated schedule is provided within 15 days of the City's written request the \$750 withheld will be returned. If the revised schedule is provided later than 15 days from requested due date the \$750 will not be returned. Each written request by the City shall be considered a separate request and subject to the withholdings specified, provided it is separated by at least 7 days from a previous request.

- D. The Contractor shall provide the City with a list of emergency phone numbers, addresses, pager numbers, facsimile numbers, and electronic mail addresses for contacting key personnel in the case of any after-hours emergency.
- E. The Contractor shall furnish the City with a schedule for hours of work. In it the Contractor shall note the begin work, begin daily clean-up and daily shutdown times to be followed by the Contractor during the project unless otherwise changed. The Contractors regular work hours on regular workdays shall be between 7:00 AM and 5:30 PM Monday thru Thursday and between 7:00 AM and 4:00 PM on Friday unless otherwise stated in the specifications. This work hours time frame shall be considered to include start-up of equipment and daily clean-up of the work area. Weekends and Holidays for the City of Sedona shall be considered non-regular work hours. Permission to work non-regular work hours shall be subject to approval of the Engineer. **The Engineer may deduct \$250 per day for work outside of approved work hours after issuance of one written warning during the course of the project.**

10. PROGRESS MEETINGS

Periodic meetings shall be held between the City of Sedona officials, Contractor, and other affected agencies, at a standard time and place, and at a frequency to be established during the pre-construction meeting. These meetings shall be used to discuss scheduling and matters related to the project.

11. TAXES

The Contractor shall be responsible for and shall include in his bid prices all applicable taxes, including but not limited to Federal, State, and Local Taxes.

12. ASSIGNMENTS

The Contractor shall not assign the whole or any part of the Contract or any monies due or to become due hereunder without the written consent of the City and of the Surety on the Contractor's Bond. A copy of such consent of Surety, together with a copy of the assignment, shall be filed with the City. If the Contractor assigns all or any part of any monies due or to become due under the contract, the instrument of assignment shall contain a clause substantially to the effect that it is agreed that the right of the assignee in and to any monies due or to become due to the Contractor shall be subject to prior claims and liens of all persons, firms, and corporations for services rendered; for the payment of all materials and equipment furnished and for payment of all materials and equipment used or rented in the performance of the Work called for in the Contract; and for the payment of any liens, claims, or amounts due the Federal, State, or local government or any of their funds.

13. SUBCONTRACTING

- A. Subcontractors will not be recognized as employees or agents of the City, nor as having any privity of contract with the City. All persons engaged in the work of construction will be considered by the City to be employees of the Contractor. The Contractor will be held responsible for their work and for all materials provided by them, which shall be subject to the provisions of the Contract.
- B. Each subcontract shall contain a suitable provision for cancellation or termination thereof should the Subcontractor neglect or fail to conform to every provision of the contract.
- C. Subcontractors collectively shall not perform more than fifty percent (50%) of the value of the total work required pursuant to the Contract Documents. **The Contractor agrees that should this percentage be exceeded the City may consider the Contractor in breach of this contract and/or make deductions equal to one half of one percent of the total approved contract value for each one percent of subcontracted work beyond that allowed above.** The Contractor shall perform fifty percent (50%) of the contract work using the Contractor's own organization as construed in ADOT Standard Specifications 2000 Section 108.01.
- D. The City of Sedona encourages all contractors to utilize minority and women owned businesses whenever possible.

14. COOPERATION AND COLLATERAL WORK

- A. In general, the Contractor shall be responsible for the scheduling and coordination of his work with any other work, which may be, carried on in the construction areas for this project by other parties or by the City simultaneously with his construction work. The contractor shall include in his bid any costs, which may be involved on his part as a result of coordinating his construction with such other activity.
- B. When two or more Contractors are employed by the City in related or adjacent work, each shall conduct his operations in such manner as to not cause any delay or hindrance to the other and shall properly connect and coordinate the execution of their respective work with the other. The City will not be responsible for damage caused by such delays, and such delays will not entitle the contractor(s) to an extension of time. The Contractor shall afford other Contractors reasonable opportunity for the introduction and storage of their materials and the execution of their work.

If the proper execution of any part of the Contractor's work depends upon the work of any other Contractor, the Contractor shall inspect and promptly report to the City Engineer any discrepancies between the executed work and the drawings or any defects in such work that render it unsuitable for such proper execution. The failure of the Contractor to inspect and report shall constitute an acceptance of the other contractor's work as fit and proper for the reception of his own work. The exception is for defects, which may develop in the other contractor's work, after the execution of the Contractor's collateral work that would not have been discovered before the Contractor's collateral work began.

- C. The contractor shall coordinate his work, and cooperate with any other persons or entities operating on or adjacent to the site of the project.

Where persons employed by other persons or entities are engaged in or near the construction areas for this project, and where such work on the part of said parties results in a delay in performance by the Contractor, and where such delay, in the opinion of the City Engineer, is of such nature that it could not have reasonably been foreseen or anticipated by the Contractor in time for him to take steps to prevent same, then the Contractor shall be entitled to an extension of time.

The Contractor shall promptly make good any injury or damage caused by him that may be sustained by other Contractors or employees of the City. The Contractor shall join his work to that of others and perform his work in proper sequence in relation to that of others.

15. LINES AND GRADES

The Contractor shall be responsible for providing all construction staking and surveying needed to construct the facilities in accordance with the Plans and Specifications, and shall include such costs in his bid for the applicable items of work. The Contractor shall employ a surveyor licensed in the State of Arizona to perform all surveying necessary to construct this project to the lines and grades provided in the plans. The Contractor shall provide to the Engineer the Surveyor's listing of lines, grades, distances, curve information and point data (including northing, easting and elevation) used to actually establish project staking at least two working days prior to establishing subgrade, setting forms, placing pre-cast facilities, pouring concrete, installing pipe, or placing asphalt. The Contractor shall provide a set of as-built plans showing manhole and inlet inverts, rim and grate elevations, gutter elevations at 100-foot intervals, changes of grade, invert and finished grade elevations of concrete structures at the center and corners, and the inlet and outlet ends of pipes. The surveyor shall stamp these As-built plans. This as-built plan is in addition to the Status As-Built and Record As-Built required under other provisions of these specifications. The Final contract payment shall not be due until all as-built plans have been submitted. Any work performed without complying with the Survey requirements in these specifications shall be considered unauthorized work and subject to the provisions of MAG section 105.11. As-Built plans shall be submitted in the following formats: hard copy in the same size as provided by the City to the Contractor for the contract, AutoCAD 2006, and .pdf.

The Contractor shall pothole utilities facilities at least 2 working days prior to excavating for installation of catchbasins, underground pipes, manholes, footings, vaults, and basins. The Contractor shall report the results of such potholes in writing to the Engineer at least 2 days prior to excavating for installation of catchbasins, underground pipes, manholes, footings, vaults, and basins. The report shall report the amount of any conflicts or inadequate clearances as related to the work to be performed. Failure to perform potholes and report results, as required, will result in the loss of the right to make a claim for changes in compensation and time due to conflicts, interference, protection or other costs related to the utility, insofar as such a claim would have been mitigated by performing the pothole timely.

16. EXCAVATIONS, UNDERGROUND FACILITIES LOCATION, AND STORMWATER POLLUTION PREVENTION.

The Contractor in the execution of the Work shall conform to all applicable Federal and State laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over employment discrimination, wages and working conditions, and the construction of the Work, including but not limited to all construction codes, O.S.H.A. Requirements, and safety

codes, which may apply to (1) performance of the Work; (2) protection of adjoining and adjacent property; (3) maintenance of passage-ways, guard fences or other protective facilities; and shall obtain all permits and pay for licenses and approvals necessary for the construction of the Work and give all required notices.

ARS-40-360.22 Excavations: determining locations of underground facilities; providing information. This statute requires that no person shall begin excavation before the location and marking are complete or the excavator is notified that marking is unnecessary and requires that upon notification, the owner of the facility shall respond as promptly as practical, but in no event later than two working days. The “Blue Stake Center” (1-800-782-5348) was formed to provide a more efficient method of compliance with this statute.

ARS-40-360.23 Making excavations in careful, prudent manner: liability for negligence. This statute states that obtaining information as required does no excuse any person making any excavation from doing so in a careful and prudent manner nor shall it excuse such persons from liability for any damage or injury resulting from his negligence.

ARS-40-360.28 Civil penalty; liability. If the owner or operator fails to locate, or incorrectly locates the underground facility, pursuant to this article, the owner or operator becomes liable for resulting damages, costs and expenses to the injured party.

Licenses and Permits

The Contractor shall be required to obtain, at his expense, the appropriate licenses and permits from the City of Sedona before the start of construction. It is the duty of the Contractor to determine that all necessary permits have been obtained. Costs associated with obtaining a license are not waived.

Arizona Pollutant Discharge Elimination System (AZPDES) Permit

A. General requirements:

The Contractor shall comply with the AZPDES Stormwater requirements for construction sites pursuant to the requirement of the Arizona Department of Environmental Quality (ADEQ). The Contractor shall be designated as permittee and shall be responsible for providing the necessary labor and materials, and for taking the appropriate measures to assure compliance with the ADEQ requirements, as well as other Federal, State and local requirements pertaining to storm water discharges. As the permittee, the contractor is responsible for completing, in a manner acceptable to the ADEQ, all documents required including the following:

1. Storm water Pollution Prevention Plan (SWPPP) for the project including certification form. The contractor will be required to update and revise the SWPPP as necessary throughout the construction of the project in order to assure compliance with permit requirements. The completed SWPPP shall be kept on the project site at all times during construction of the project.
2. Notice of Intent (NOI) to be covered by Arizona General Permit for Arizona including certification of signature.
3. Notice of Termination (NOT) of coverage under AZPDES (upon project completion).

B. Regardless of whether compliance with AZPDES is required the Contractor shall prepare a Storm Water Pollution Prevention Plan. That Plan shall at a minimum address the following issues:

- Designation, maintenance and clean-up of vehicle storage, fueling, lubrication and maintenance areas
- Clean up and off-site disposal of excess construction materials including asphalt, concrete, paints, oils, and wrapping materials
- Daily work day clean-up of debris in work area.
- Prevention of wind born debris/Dust Control Plan
- Prevention of erosion resulting from rain or watering activities

C. Submittals:

1. Preliminary copies of the NOI and SWPPP shall be submitted to the Engineer two days prior to the preconstruction meeting. Any necessary revisions to the SWPPP shall be subject to review by the Engineer, prior to implementation.
2. The Contractor shall submit completed, signed NOI forms at least 48 hours prior to the initial start of construction on the project to the Arizona Department of Environmental Quality in Phoenix, Arizona (ADEQ, 1110 West Washington Street, Phoenix, AZ. 85007). Generally projects of less than one (1) acre may not be applicable to this requirement at this time. If the project is subject to these requirements, the Contractor shall be designated the permittee.
3. Failure by the contractor (or any of its appropriate subcontractors) to submit the NOI forms within the required time frame shall result in delay of the start of construction, but shall not prohibit issuance of the Notice to Proceed, at the City's sole discretion. A copy of the completed NOI shall be posted on the construction and a copy of the SWPPP shall be kept on the construction site.

Contractor's Responsibilities:

1. It is the Contractor's responsibility to perform inspection of all storm water pollution control devices on the project on a monthly basis and following each rainfall. The contractor shall prepare reports on these inspections and retain these reports for a period of three years following project completion. Inspection reports shall be submitted monthly to the CITY along with payment requests. The contractor shall maintain all storm water pollution control devices on the project in proper working order, including cleaning and/or repair during the duration of the project.
2. No condition of either the AZPDES or the SWPPP shall release the contractor from any responsibilities or requirements under other environmental statutes and regulations.
3. Upon total project completion, acceptance, and de-mobilization, the contractor shall submit its completed, signed NOT form to the ADEQ with copies to the same agencies who received copies of the NOI, thereby terminating all AZPDES permit coverage for the project.

D. Payment: There shall be no separate payment made to the Contractor for all material, labor, and other incidental costs relating to the provision, installation, and maintenance of items relating to this permit during project construction. Such incidental costs shall include contractor costs in order to assure proper operation of the pollution-control devices installed including all maintenance, cleaning, and disposal costs associated with clean-up and repair following storm events or other runoff or releases on the project.

17. EXISTING UTILITIES, RIGHTS-OF-WAY, EASEMENTS

A. EXISTING UTILITIES

Because of the nature of this contract existing utilities are not shown or indicated in these specifications, except to note that their locations are within rights of way, streets and easements throughout the City of Sedona area. The fact that utilities are not shown shall not relieve the Contractor of the following responsibilities:

1. The Contractor shall be responsible for the preservation of all existing water, sewer, storm sewer, buried transmission lines or any cable or utility. If damaged, all costs for the necessary repairs shall be paid by the Contractor.
2. The Contractor shall locate and verify the location of all existing utilities prior to any excavation. This shall be done at least 2 days prior to excavation for installation of project facilities or ordering equipment or materials for those facilities.
3. The Contractor shall be responsible for the location of all service lines.
4. Continuation of Service - All services shall be maintained to all areas at all times during the construction period, except when it is necessary to shut down a line to make a connection with the new line. Residents shall be given 24-hour notice when it is known that the service will be interrupted. The Sedona-Oak Creek Fire District shall be kept advised of the status of all fire hydrants affected by any work on this Project.

B. RIGHTS-OF-WAY AND EASEMENTS

The City will furnish land, right-of-way, or easements as shown in the Contract Documents for the performance of the Work under the Contract. Contractor shall confine his operations to the land, right-of-way or easements furnished, and will restore the same to their original conditions to the extent reasonably possible prior to final acceptance of the work. Prior to construction or entry thereon, the Contractor shall obtain copies of and become familiar with any agreements and stipulations used by the City in acquiring temporary or permanent easements.

The Contractor shall be responsible for the preservation of all existing property pins. If disturbed or damaged the Contractor shall be responsible for all costs associated with the restoration of any property pin disturbed by the Construction activities. Any property monuments, which require resetting, shall be reset under the direction of a licensed Surveyor by the State of Arizona.

Access by Residents: The Contractor shall insure that all residents have access from the Street to their property each night. When access to a resident's property cannot be maintained during normal working hours (week days), the Contractor must personally notify the affected residents two working days in advance of the closure. Such notification shall be documented in writing to the Engineer. Emergency access shall not be blocked, for any reason without the express written permission from the owner.

Access to Public Facilities: The Contractor shall assure that safe access to facilities including, but not limited to, parking lots, picnic shelters, playgrounds, and pedestrian ways is provided. Any disruption to the public's normal use of said facilities shall not occur without the express written permission from the City.

Intersection and Driveway Maintenance: Once work has commenced in a particular street, the Contractor shall provide and maintain access facilities to all connecting streets, intersections and private driveways by ramping or surfacing with suitable materials to insure access at all times. If in the opinion of the City, such facilities, or materials used, are not capable of supporting traffic, the Contractor shall remove the materials and provide better-suited materials, including asphalt concrete or similar, as directed by the Engineer. This work shall be considered incidental to the Project, and all costs shall be borne by the Contractor. Failure to comply with these requirements may result in stoppage of the work until corrected as determined by the Engineer, with no time extension being granted for such delay to the Project.

18. OPERATIONS, LAYDOWN YARD AND STORAGE AREAS

- A. All operations of the Contractor (including laydown yard, storage of materials, supplies, and equipment) shall be confined to areas authorized by the City. **The City of Sedona does not have available construction staging or material lay down facilities, except as specified otherwise in the specifications.** The Contractor is responsible for arranging and providing for such facilities as is deemed necessary for carrying out the work of this contract. The City does not warrant or represent in any way the availability of staging or material lay down areas within the City or vicinity of the project. It is the Bidder's responsibility to make such determinations. The price paid for mobilization shall include all costs for and associated with providing construction staging and material lay down facilities necessary for constructing the project. If a mobilization item is not included in the specification, the cost for compliance with item shall be considered as included in the unit price (s) bid for the various items of work. The Contractor shall be liable for all and any damages caused by him to such premises.

The Contractor shall comply with the following, regarding laydown yards:

- Any use of vacant property adjacent to or near the project used for parking or servicing equipment and/or storing of material will require the Contractor to provide written approval from the property owner, homeowner associations as applicable, and the filling of a temporary use permit from the City of Sedona.
- A copy of the property owner's approval shall be submitted to the Engineer, stating the use of the laydown yard for use during the construction of this project is acceptable.
- The Contractors yard shall be enclosed with a 6-foot temporary fence.
- Storage of Gasoline will require Fire Department approval.

- Clearing or grading of the site in excess of 50 CY of soil will require a grading permit. No grading will be allowed which changes the drainage path for the parcel without the approval of the City Engineering Department. All existing pipes and drainage facilities at the laydown yard will be maintained in working order at all times.
- A stabilized construction entrance will be required if the vacant property laydown yard is not already gravel or pavement. The laydown yard shall be adequately maintained to control dust and mud from leaving the property.
- Work in the laydown yard shall be scheduled so as to comply with any City noise or light Ordinances and these specifications.
- Equipment, materials, etc., shall be located so as to minimize impact to adjacent properties.
- Before any grading of any laydown yard, property corners will be located for the parcel. Any property pins disturbed by the Contractors operations will be replaced prior to final acceptance of the project.
- The Contractor shall obtain a written release from the property owner, homeowner's associations or similarly concerned parties after completion of use. A copy of the release shall be presented to the Engineer.

B. The Contractor shall hold and save the City free and harmless from liability of any nature or kind arising from any use, trespass, or damage occasioned by his operations on the premises of third persons.

C. The Contractor shall be wholly responsible for the care, compliance with law, and storage of materials, supplies or equipment delivered on the work site or purchased for use thereon. Stored materials, supplies, or equipment shall be carefully and continuously protected from damage or deterioration and so located so as to facilitate inspection by the City. The responsibility for the care and storage of materials, supplies, or equipment shall be with the Contractor whether such materials, supplies, or equipment are furnished by the Contractor or by the City. Storage of materials, supplies, or equipment shall not unduly interfere with the progress of the Contractor's Work or the work of any other contractor.

D. Traffic Control:

Adequate traffic flow shall be maintained at all times, all barricading and temporary signage for detours and traffic control must meet the standards set by the Manual of Uniform Traffic Control Devices (M.U. T. C. D.) and the City's Engineer. If traffic control is not a separate bid item; then, it is considered incidental to the work and shall be included as appropriate in the Contractors bid. The Contractor must also take responsibility for public safety, meaning:

1. That, except for alleyways, one lane of the roadway for each direction must be kept open at all times; OR
2. Flag people must be provided to properly channel traffic at all times when two separate lanes (one each direction) cannot be maintained open; OR
3. Total closure of a roadway shall only occur with the written permission of the City. For all rights-of-ways requiring closure for any work therein, appropriate permits shall be obtained. Prior to start of construction, the Contractor shall provide the City's

Engineering Department with planned traffic control methods and procedures for this project. A notice of closure for residents, along with a map showing the planned area of distribution shall be included as part of the planned methods and procedure.

4. When detours or road closures are implemented an overall map showing anticipated flow of traffic shall be provided.
5. The Contractor shall have a designated person responsible for overall traffic control on-site at all times.

E. Water Use

1. All water used by Contractor for testing, compaction, dust control, or other uses related to construction, shall be obtained by the Contractor from an approved water source. The Contractor shall be responsible for all deposits, charges and fees.

F. Dust and Debris Control

1. **The contractor shall cover all trucked loads of soil, rock and material that may drop from, be sifted from or blown from the vehicle. The City may require that trucks arriving with uncovered loads not be allowed to deliver material to the project, regardless of whether or not the truck is the contractor's, a subcontractor's, a service provider's, or a material supplier's vehicle. If trucks leave the site with uncovered loads the City reserves the right to do one or more of the following:**
 - a. The truck will not be allowed on the site
 - b. **The contract compensation will be reduced by \$150 per observed uncovered load. The contract time will be reduced by one day**
2. Pine slash and/or cut down pine trees shall be removed from the City within 24 hours, including any non-working days, of being broken or cut. This measure is to minimize pine bark beetle infestation in Sedona.
3. The contractor shall take measures to prevent blowing debris and/or dust from the site.
4. The contractor shall clean any dirt tracked from the project work area from streets and sidewalks using equipment and methods that will not create excessive dust. Sweeping is the preferred cleaning method. Washing of streets and/or sidewalk and other paved areas will require special permission from the Engineer and shall be subject to conditions imposed by the Engineer. The City reserves the right to require that the Contractor to cease work that is resulting in excessive tracked mud and/or dirt from and within the project area, and to require cleaning prior to allowing the ceased work to continue. The exercise of the City's right and impacts there from shall not provide a basis for claim by the contractor. Failure of the Contractor to cease work shall be sufficient reason for the City to reduce the contract time by one calendar day per incident, at the City's sole discretion.

5. Dirt, debris, wastewater and other debris shall not be disposed of in stormwater facilities and/or natural drainage channels. The City may require inspection of stormwater facilities and/or natural drainage channels prior to and during the work to verify compliance with this requirement. The City may require the contractor to clean stormwater facilities and/or natural drainage channels if the contractor has disposed of material to them.

G. Open Trenches

MAG Specification Section 601.2.10 is modified to limit the length of open trench to 1100 feet within the project. An open trench includes any longitudinal excavated area 3 inches or more below adjacent land which has settled or been left lower intentionally. All open trenches shall properly marked and protected so as to warn pedestrians and vehicular traffic of a low area.

19. RIGHT-OF-ENTRY

Contractor shall provide to the City, Architect-Engineer, or representative of the Federal, State, County, District and Municipal governmental officials and services, the proper facilities for access to the Work, whenever it is in preparation or progress.

20. ACCESS AND DRAINAGE

The Contractor shall keep a sufficient clear area around fire hydrants to permit their full and effective use in case of fire. The Contractor shall keep natural drainage and watercourses unobstructed by spoil piles, material storage, or any other operations, or provide for other equal courses effectively placed.

21. SANITARY CONVENIENCES

The Contractor shall furnish the necessary sanitary conveniences, properly secluded, for the use of work persons during construction, and these conveniences shall be maintained in a manner that will be inoffensive and in compliance with Federal, State and local health and sanitation requirements.

22. CLEANUP PRACTICES

- A. The Contractor shall at all times during the progress of the work maintain a reasonably clean job site, this includes, but is not limited to, keeping signs clean and legible, minimizing mud, rock, and dirt on roadways, and keeping ditches free of trash and construction materials. If in the opinion of the Engineer, excessive dust, mud or debris exists at the job site, the Contractor shall immediately remove said material as directed. All costs associated with this work shall be borne by the Contractor. The location of debris and material stockpiles shall be as directed by the Engineer.
- B. The Contractor shall begin his daily clean-up process at a typical time agreed to by the City at the pre-construction meeting. If the Contractors operations and daily shut-down exceed a forty hour work week or eight hour day then the City will be entitled to withhold a portion of the Contractors progress payment for City "overtime" work pursuant to Article 32 and 39.

- C. The site shall be kept clean of trash and debris including but not limited to, loose construction materials, such as sand, cement, lime, wood pieces, building paper, and other miscellaneous paper. All trash and debris shall be placed in an appropriate number of approved containers and moved and disposed of off the site daily in a location where it will not be possible to be dispersed. No burning of trash or debris will be permitted on the site, except where designated by the Engineer. The laydown yard shall have a minimum of one container of appropriate size at all times.

When site daily clean-up has not been kept up as requested in writing by the City the Contractor shall bring the site into compliance with the City within 24 hours or the City shall withhold \$350 for each day out of compliance.

- D. Before final payment, the Contractor shall remove all rubbish, excess materials, temporary structures, and equipment. All parts of the work shall be left in a neat and presentable condition. Excess mounds of earth shall be leveled and ruts and depressions filled, such that the completed work is attractive. If in the opinion of the Engineer, the Contractor does not maintain the Construction Site in a safe and clean condition, or does not adequately clean up the site at the completion of the work, or rectify any valid complaints of damage to property resulting from the Construction, the City may clean up or rectify damage and charge the costs thereof to the Contractor.
- E. The Contractor shall be responsible for locating sites and making arrangements for disposal of all material removed from the site. This includes concrete, asphalt, unsuitable or unstable trench material and any other trash, rubbish or debris generated as a result of construction. Asbestos, hazardous substances or materials, hazardous waste or any other regulated substances or materials shall be disposed of in accordance with all applicable federal, state and local regulations.
- F. All vegetation and improvements removed from easements by the Contractor shall be removed or repaired by the Contractor in accordance with the easement agreement with the property owner, the same being done at no additional cost to the City.

23. PLANS AND SPECIFICATIONS

- A. The City will provide the Contractor with four (4) sets of plans, drawings, and specifications after the execution of the Contract. If additional plans, drawings, and specifications are required, the Contractor shall compensate the City for it.
- B. When, in the opinion of the City, revised partial plans, drawings and specifications are required to clarify or reflect authorized changes or additional work the City shall provide four (4) copies of such revisions to Contractor. The Contractor must pay for any additional copies. Contractor shall immediately post such revisions to his record set of Contract Documents.
- C. The plans, drawings, and specifications are the property of the City, and are furnished to the Contractor for the construction of Work under the Contract only.
- D. Data and Measurements. The data given in the specifications and shown on the plans and drawings is believed to be accurate but the accuracy is not guaranteed. The Contractor must confirm all levels, locations, measurements, and verify all dimensions on the job site prior to

construction and adapt his Work into the exact limits of construction. Scale measurements taken from plans are only for reference.

- E. Drawings showing the details of the Work specified are designated "plans" or "drawings" and together with the specifications form an integral part of the Contract Documents.

24. CORRELATION OF DOCUMENTS

- A. Plans, drawings, and specifications are cooperative and supplementary. Portions of the Work, which can best be illustrated by the plans or drawings, may not be included in the specifications and portions best described by the specifications may not be depicted on the plans or drawings. All items necessary or incidental to completely construct or erect the Work specified shall be furnished, whether called for in the specifications or shown on the plans or drawings. Unless otherwise stated the plans and specifications shall be considered to require construction or erect of a complete and operable facility.
- B. Special Conditions shall take priority over Technical Specifications, which shall take priority over General Conditions; large-scale drawings shall take precedence over small-scale drawings. In case of a disagreement between the plans, drawings, and specifications, or within a document itself, the better quality and the greater quantity of work shall be estimated and included in the bid and contract sums and the matter drawn to the City's attention for further decision, and possible issuance of an addendum.

25. SHOP DRAWINGS, SAMPLES, AND OPERATOR'S INSTRUCTION

- A. The Contractor shall furnish all Shop Drawings and Samples required by the Contract Documents. Shop Drawings of equipment and devices offered by the Contractor for approval of the City shall be in sufficient detail to adequately show construction and operation. A minimum of four (4) copies of the above material shall be submitted to the City for review unless otherwise specified. Shop drawings submitted as herein provided by the Contractor and approved by the City for conformance with the design concept shall be executed in conformity with the Contract Documents unless otherwise required by the City.
- B. Work performed in connection with the fabrication, manufacture, shipment, or purchase of material or equipment prior to approval as specified shall be at the Contractor's sole risk and responsibility.
- C. Shop Drawings and Samples shall be accompanied by a letter of transmittal indicating that the Contractor has reviewed and approved the submittal. The transmittal shall give a list of the numbers and dates of the submittal, and shall be in the form required by the City. Any re-submittals shall show numbers and dates of previous submittals. Shop Drawings shall be complete in every respect and bound in sets.
- D. The Contractor shall submit all Shop Drawings and Samples (submittals) sufficiently in advance of construction requirements to allow ample time for checking, correcting, resubmitting, and rechecking to avoid any delay in progress of the Work. In no case however shall this time be less than 5 days without the consent of the Engineer. In the case of submittals for pump installations and similarly complex equipment the minimum time frame shall be 30 days. This time frame shall also apply to resubmittals. If more than five submittals are made in a week the minimum City review time shall be extended by five days

for each submittal. The Contractor shall be solely responsible for delays and costs related to resubmittals or untimely submittals.

- E. Shop Drawings or Samples submitted shall be marked with the name of the Project, numbered, and bear the stamp of approval of the Contractor as evidence that the Shop Drawings and Samples have been checked by the Contractor. Any Shop Drawings or Samples submitted without this stamp of approval shall not be considered and shall be returned to the Contractor for resubmission. If the Shop Drawings or Samples show variation from the requirements of the Contract, the Contractor shall call such variation to the City's attention in his letter of transmittal in order that, if acceptable and City gives written approval to the variation, suitable action may be taken for proper adjustment.
- F. By approving and submitting Shop Drawings and Samples, the Contractor thereby represents that he has determined and verified all field dimensions and measurements, field construction criteria, materials, catalog numbers, and similar data, and that he has checked, and coordinated such submittals with the requirements of the Work and the Contract Documents.
- G. If a Shop Drawing or Sample, as submitted, indicates a departure from the Contract requirements which the City finds to be in the interest of the City and to be so minor as not to involve a change in the contract price or time for performance, it may approve the Drawings or Samples; provided, however, such departure is slight in nature and does not affect the design concept of the Work.
- H. All items of standard equipment shall be the latest model at time of delivery.
- I. When Shop Drawings are submitted for the purpose of showing the installation in greater detail, their approval shall not excuse the Contractor from requirements shown on the plans and specifications.
- J. Shop Drawing and Sample submittals not conforming completely with the above requirements shall be returned to the Contractor, without action, for re-submittal and the resulting delay shall be entirely the responsibility of the Contractor.
- K. The City's check and approval of shop Drawings and Samples, specifications, and descriptive literature submitted by the Contractor shall be only for general conformance with design concept, as otherwise provided, and shall not be construed as:
 - 1. Permitting any departure from the Contract requirements;
 - 2. Relieving the Contractor of the responsibility for any error in details, dimensions, or otherwise that may exist in such submittals;
 - 3. Constituting a blanket approval of dimensions, quantities, or details of the material or equipment shown; or
 - 4. Approving departures from additional details or instruction previously furnished by the City. Such check or approval shall not relieve the Contractor of the full responsibility of meeting all of the requirements of the Contract Documents.
- L. Four sets of bound operator's instructions and maintenance manuals shall be furnished by the Contractor for equipment furnished under the Contract that is specially listed or that is considered to be of a special or complex nature. Operator's instruction and maintenance

manuals shall include, in part, detailed lubrication drawings showing type and frequency of lubrication. Detailed parts drawings shall show location, name and catalog numbers of parts.

- M. Four sets each of bound service parts manuals shall be furnished by the Contractor for all items of standard manufacture.
- N. All operator instructions, maintenance, and parts manuals shall be bound in permanent binders satisfactory to the City and shall be furnished to the City before final acceptance of the installation by the City.
- O. Four (4) copies of any manufacturer's guaranty/warranty or certificate for any type of material or equipment provided shall be submitted to the City prior to final acceptance of the Work by the City.

26. DRAWINGS SHOWING CHANGES DURING CONSTRUCTION

Throughout the progress of construction, the Contractor shall maintain a careful up-to-date record of all changes on the plans and drawings during actual construction. *With each progress payment invoice the Contractor shall provide a "Status As-Built" showing all work completed to date.* Callouts will identify type, size and quantity of each item installed. The Contractor shall annotate all sewer taps stationing upstream to downstream using swing ties from adjacent manholes or other method the Engineer may approve in writing. Upon completion of Work, and prior to acceptance by the City, the Contractor shall file with the City one set of complete contract drawings with all changes and Contractor's field construction notes neatly and legibly recorded thereon. Such drawings shall include but not be limited to, the exact routing and clearances, if changed from drawing location, of sewer, water, gas, oxygen supply, condenser water lines, fuel oil tanks and lines, fire protection lines, and any other major buried utility lines and routing of buried electrical feeder lines and changes to routing of conduit runs which are buried or concealed in concrete slabs. The Contractor shall furnish such As-Built utility and drainage invert and rim elevations as well as gutter, top of curb shots and horizontal location of valves and hydrants placed as a part of this construction. This information is for use by the City in the preparation of record "As-Built" Drawings. Curb and gutter shots shall be spaced no further than 50 feet apart and shall include any significant bends, drops or other deviations from a straight horizontal or vertical alignment.

27. MATERIALS, EQUIPMENT, SUPPLIES, SERVICES, AND FACILITIES

- A. It is understood that, except as otherwise specifically stated in the Contract Documents, the Contractor shall provide and pay for all materials, equipment rental, water, heat, light, fuel, power, transportation, superintendence, temporary construction of every nature, and all other services and facilities of every nature whatsoever necessary to execute, complete, and deliver the Work in a workman like manner within specified time.
- B. No materials, equipment, or supplies for the Work shall be purchased by the Contractor or by any Subcontractor subject to any chattel mortgage or under a conditional sale contract or other agreement by which an interest is retained by the seller.
- C. Equipment shall be properly equipped with safety devices including but not limited to spark arrestors, back up alarms, reflectors, signage, labeling, and lights.

- D. At least one set of all appropriate Material Safety Data Sheets shall be maintained in a common location on the project site at an identified location during all working hours.

28. WORKMANSHIP, MATERIALS, AND EQUIPMENT

- A. All material and equipment furnished by the Contractor shall be new and unused and shall strictly conform to the Contract Documents. Competent labor, mechanics and tradesmen shall be used on the Work. Experienced manufacturer's representatives shall be used to supervise the installation of equipment as may be required by the City. Any special tools or equipment, which may be required, shall be provided by the Contractor.
- B. The acceptance at any time of materials or equipment by or on behalf of the City shall not be a bar to future rejection if they are subsequently found to be defective, inferior in quality or uniformity to the material or equipment specified, or are not as represented to the City.

29. QUALITY OF MATERIALS IN ABSENCE OF DETAILED SPECIFICATIONS

- A. Where the Contract requires that materials or equipment be provided or that construction work be performed, and detailed specifications of such materials, equipment or construction work are not set forth, the Contractor shall perform the work using materials and equipment as described in the specifications. Constructed or installed as described therein, and shall follow standard practices in the performance of construction work. The work performed shall be in conformity and harmony with the intent to secure a good, serviceable standard of construction.
- B. All tests and re-tests unless otherwise provided, shall be in accordance with the pertinent sections of the latest edition of the standards applicable to the material or devices to be tested. A partial list of the principal societies referred to and their Abbreviations follows:

AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute
AISC	American Institute of Steel Construction
ANSI	American National Standards Institute
ASTM	American Society of Testing Materials
AWWA	American Water Work Association
CPI	Clay Pipe Institute
CS	Commercial Standards
FS	Federal Specifications
NEC	National Electric Code
TMCA	Tile and Marble Contractors of America

30. VARIATIONS FROM ESTIMATED QUANTITIES

When unit prices are utilized in the Contract Documents, it may be reasonably expected that there could be variations in final quantities from the estimated quantities by reason of actual conditions and/or change orders. An adjustment in compensation may be allowed only to the following extent:

- A. For a decrease greater than 20 percent in either the total cost of the contract or the total cost of a major item and when a reasonable cost analysis supports an increase in the pro rata share

of fixed cost chargeable to this item in total, an adjustment in the monies due the Contractor may be made. The total amount, including any adjustment, will not exceed 80 percent of the original lump sum contract amount or, for a unit price item, the total amount, including adjustment, will not exceed 80 percent of the original extended unit bid price.

- B. For an increase greater than 20 percent in either the total cost of the contract or the total cost of a major item, any adjustment made will only apply to that cost in excess of 120 percent of the original bidding schedule. If either party presents a reasonable cost analysis that shows a change in the pro rata share of fixed costs chargeable to this item in total, an increase or decrease adjustment may be made. This increase or decrease adjustment will be made on such basis as is necessary to cover a reasonable estimate of cost, plus an allowance, not to exceed 10 percent, for overhead and profit.
- C. A major item is an item whose total cost, determined by multiplying the bidding schedule quantity and the contract unit price, is equal to or greater than the amount indicated below. A major item will remain a major item unless it is completely eliminated. Compensation for a completely eliminated major item shall be limited to the amounts indicated, but not to exceed the amount demonstrated by information provided to show the cost impact of the deletion, not including anticipated profit.

Total Contract amount as awarded equal to or greater than (in dollars)	But is less than (in dollars)	A major bid item Shall be equal to or greater than the following amount (in dollars)	If the item is completely eliminated compensation shall be limited to no more than (in dollars)
\$0.00	\$1,000,000	\$50,000 or 10% of the Contract amount as awarded	\$2,000
\$1,000,000	\$5,000,000	5% of the Contract amount as awarded	\$5,000
\$5,000,000	\$20,000,000	2.5% of the Contract amount as awarded	\$7,500

- D. For either an increase or decrease in cost, no claim shall be made by the Contractor for any loss of anticipated profits.

31. PROGRESS PAYMENTS

- A. When monthly progress payments are authorized, the Contractor shall, on the date determined during the pre-construction meeting, submit to the City an itemized application for payment, supported by “Status As-Builts” and such data substantiating the Contractor's right to payment as the City may require, on forms acceptable to the City. Progress payments shall be made no more than once each calendar month and provided that there are a minimum 15 calendar days between payments, unless otherwise authorized on a payment-by-payment basis by the City Engineer or City Manager. Progress payments are subject to retainage of

10% (ten percent) with possible reduction to 5% (five percent) in accordance with the provisions of Arizona Revised Statutes.

- B. The Contractor shall provide to the City at the time of payment, a waiver and release to date from the Contractor and each and every Subcontractor and material supplier whose work or materials are included in the application for payment, evidencing that said Contractor, Subcontractor or material supplier has been paid in full to date.
- C. Unless otherwise provided in the Special Provisions, payment will not be made on account of materials or equipment not incorporated in the work, at the time of a request for payment, but delivered and stored at the site. Similarly, payment will not be made for materials or equipment stored at some other location unless agreed upon in writing. If payment is allowed per the Special Conditions, payment for materials or equipment stored on or off the site shall be conditioned upon submission by the Contractor of bills of sale or such other procedures satisfactory to the City to establish the City's title to such Materials or equipment or otherwise to protect the City's interest, including applicable insurance and transportation to the site for those materials and equipment stored off-site.
- D. The Contractor warrants that title to all materials, supplies, and equipment covered by an application for payment, whether incorporated into the Work or not, shall pass to the City, upon receipt of payment by the Contractor, free and clear of all liens, claims, security interests or encumbrances; and that such materials, supplies or equipment furnished or installed comply with the applicable requirements of the Contract Documents.
- E. The passing of title to the City as herein provided shall not be construed as relieving the Contractor of the sole and complete responsibility for:
 - 1. The care and protection of the materials, supplies, equipment, and Work for which payment has been made.
 - 2. The restoration of any damaged or destroyed Work, materials, supplies or equipment. Such responsibility shall continue until all Work under the Contract has been completed and accepted by the City.
- F. Under no circumstances shall payment constitute a waiver of the City's right to require the Contractor to fulfill all of the terms and conditions of this Contract.
- G. **INVOICE PROCESSING:** The City will not accept inaccurate, illegible, or incomplete invoices (requests for payments). Invoices shall be hard copy, with original signature. Electronic or facsimile signatures are not acceptable on the invoice.
 - 1. The City distributes payments on every other Friday, beginning on 3/22/13, unless holidays dictate otherwise. Invoices must be processed to the Finance Department not later than 4:30 P.M. three days prior to the distribution day. The Public Works Department requires three workdays to process a correct, accurate, and otherwise acceptable invoice.
 - 2. The City's Project Engineer must receive an acceptable, correct invoice with required supporting documentation not later than close of business on the Wednesday, nine calendar days prior to the expected check distribution day.
 - 3. For projects longer than 60 calendar days duration, each request for payment shall be accompanied by a progress schedule, effective through the invoice period. The City shall

not release a payment until the contractor provides an acceptable, accurate, and updated project schedule.

32. PAYMENT WITHHELD

- A. The City may decline to certify payment on account of subsequently discovered evidence or observations, may nullify the whole or any part of any payment certificate previously issued to such extent as may be necessary to protect the City from loss on account of any one or more of the following:
1. Defective Work not remedied.
 2. A reasonable doubt that the Contract can be completed for the balance then unpaid.
 3. Unsatisfactory prosecution of the Work.
 4. Not maintaining a current project schedule.
 5. Not providing adequate progress payment "Status As-Builts".
 6. Deductions for not conforming to daily clean-up requirements.
 7. Deductions for reimbursement of City overtime inspection.
 8. Liquidated damages payable by the Contractor.

In addition, the City reserves its rights under ARS Sections 32-1129.01 and 34-221I.

- B. When any of the above problems are resolved, payment shall be made for amounts withheld pursuant to Article 31.

33. MEASUREMENTS

- A. The itemized Application for Payment will be used by the Engineer as a basis for evaluating requests for payment, except in cases where unit prices have established the basis for payment shall include as a minimum the following items:
1. Separate cost itemizations for mechanical, piping, structural, electrical instrumentation, painting, pre-engineered structures, and architectural finish work.
 2. Separate cost line items, showing both purchase and installed cost, for the major equipment items listed in the bidding schedule.
 3. A separate line item for mobilization not to exceed ten percent (10%) of the total Contract amount. This limitation shall apply even when a bid item for mobilization is shown in the bid schedule, unless the Engineer has assigned a fixed cost for the item. Amounts excess of this limitation shall be included on the final payment.
 4. A separate line item for demobilization, not to exceed one-half of one percent (0.5%) of the total Contract amount. This limitation shall apply even when a bid item for demobilization is shown in the bid schedule, unless the Engineer has assigned a fixed cost for the item.
 5. Separate line items for earthwork, demolition and clearing and grubbing, where appropriate. Measurement and payment for the various items shown by the Contract Drawings and described in the construction Specifications, and comprising the completed work, shall be subject to this Article.

- B. The contractor may subdivide any of the lump sum bid items in the proposal as necessary to identify items per A above, however the neither the total bid or the total of any subdivided bid item line shall exceed the total in the bid proposal as awarded.
- C. Payment for each item shall constitute payment in full for the furnishing of all materials, equipment, appurtenances, labor, plant and tools necessary to provide a complete workmanlike, finished, and satisfactory project, as shown by the Contract Drawings and described in the Specifications. Each item shall be completed with all necessary connections, testing, painting and related work accomplished to provide for the satisfactory use and/or operation of the item. No additional payment will be made for work related to each item, unless specifically noted or specified.
- D. No additional payments will be made for work related to any item unless specifically noted and called for in the Bid Proposal. Payment will be made at the unit price or lump sum price bid in the Bid Proposal.
- E. Measurement will be on the completed work in place, with no allowance for waste, and as may be more particularly described in the description of the various items set forth in the Specifications and as shown by the Contract Drawings.
- F. The quantities set forth in the Bid Proposal are used for the purpose of determining the basis of the Award of the Contract, and may be varied by the Engineer to conform to the requirements of the work as set forth in the Contract Drawings, and the Contractor agrees to perform the work on the basis of the prices bid for the items contained in the Bid Proposal regardless of whether or not the items or units are decreased or increased.**
- G. The Engineer shall have the right to order omitted from the Contract any item or a portion of the estimated quantity for any item found unnecessary to the work without violating the Contract or Performance Bond.
- H. Except in cases where unit prices form the basis for payment under the Contract, the Contractor shall, within twenty (20) days of receipt of the notice to proceed, submit a breakdown of the Contract price showing the value assigned to each part of the work including an allowance for profit and overhead. In submitting the breakdown, the Contractor certifies that it is not unbalanced and that the value assigned to each part of the work represents his estimate of the actual cost, including profit and overhead, of performing that part of the work. The breakdown shall be sufficiently detailed to permit its use by the Engineer as one of the bases for evaluating requests for payment.
- I. Mobilization and Demobilization: Payment for Mobilization shall include the cost for setting up Project offices and moving Equipment to the site, storage facilities, obtaining permits, and all other items required to prepare the Project site for commencement of construction activities. Demobilization shall include removal of Contractor's facilities and Equipment, and final cleanup, and all other items required to complete Demobilization.
- J. Excavation-Generally: The excavation rates shall include the amount for working in such a manner as not to interfere with the stability of adjacent structures and properties, for the costs of all timbering or other support required, for all necessary measures to keep the excavation free from water and sewage whether affected by floods, storms or otherwise, for working space, refilling, consolidating and disposal of surplus material from temporary spoil heaps or

disposal as directed by the Engineer. The rate shall apply to the excavation in any material, including rock.

No extra payment will be made if the position of the work as set out will not allow the use of a mechanical plant or necessitates the cartage to temporary spoil heaps of excavated material and the reloading and cartage back for refilling of excavations or disposal.

34. PAYMENT, USE OR OCCUPANCY OF WORK

- A. No progress or final payment, nor any partial or entire use or occupancy of the Work or improvement, nor acceptance thereof, by the City shall be evidence of the performance of the Contract or construed to be acceptance of defective work or improper materials, either wholly or in part. The Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute.
- B. The City shall have the right to take possession of, use, or occupy any completed or partially completed portions of the Work, notwithstanding the time for completing the entire Work or any portions, may, or may not, have expired. Such taking possession, use or occupancy shall not be deemed an acceptance of any Work until all Work has been completed in accordance with the Contract Documents. If such prior use or occupancy increase the cost, or delays the Work, the Contractor shall be granted such extra compensation or extension of time, or both, as City may determine.
- C. Consent of Surety and endorsement from the insurance carrier or carriers permitting prior occupancy or use of any completed or partially completed portions of the Work by the City shall be secured by the Contractor. Contractor and his Surety and enforcement from the insurance carrier or carriers permitting prior occupancy or use of any completed or partial completed portions of the Work by the City shall be secured by the Contractor. Contractor and his Surety and insurance carrier hereby agree that such consent shall not be unduly withheld.

35. CLOSEOUT PROCEDURE

When the Contractor considers that the Work, or a portion thereof which the City has allowed to be accepted separately, is substantially complete, the Contractor shall prepare a letter stating the work, or a portion of the work, is substantially complete and submit to the City a comprehensive list of items to be completed or corrected. Substantial completion shall not operate to change the contract time to which liquidated damages are applicable. Reduced liquidated damages are chargeable for a project or portions thereof which have separately specified damages, if there are items of work remaining to be performed relative to such work once full substantial completion status has been attained. In such cases the amount of liquidated damages due shall be twenty-five percent (25%) of the unreduced liquidated damage amount stated in the contract, and shall not begin until after the contract completion date.

The Contractor shall proceed promptly to complete and correct items on the list. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. Upon receipt of the Contractor's list, the City will make an inspection to determine whether the Work or designated portion thereof is substantially complete. The City Engineer shall have the sole right to determine if a Work or portion thereof is substantially complete. If the City's inspection discloses any item, whether or

not included on the Contractor's list, which is not in accordance with the requirements of the Contract Documents, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the City. The Contractor shall then submit a request for another inspection by the City to determine Substantial Completion. When the Work or designated portion thereof is substantially complete, the City will prepare a certificate of Substantial Completion which shall establish the date of Substantial Completion, shall establish responsibilities of the Contractor and City for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix a reasonable time within which the Contractor shall finish all items on the list accompanying the Certificate. If the Contractor does not complete the items within the time fixed by the City, the City, upon 10 calendar days notice, shall have the option to complete the uncompleted Work for the Contractor and deduct the cost from any amount due to the Contractor, whether or not the contract completion date has passed.

The Contractor may request a written statement from the City Engineer of what constitutes substantial completion by writing a letter of "Notice Of Intent to Declare Substantial Completion." The letter shall be sent no later than 20 days prior to the anticipated date of Substantial Completion. The letter shall state what items the Contractor intends to complete prior to declaring substantial completion and what date substantial completion is anticipated by. The City Engineer shall respond to the letter within 10 days accepting or adding to the list of items to complete prior to substantial completion. The City Engineer's response to the list shall not prevent the City Engineer from amending the list within a reasonable time prior to the anticipated date of substantial completion, or from considering factors not known at the time the response was prepared.

36. FINAL PAYMENT

- A. Prior to receiving final payment, the work shall be completed according to the Contract Documents, as determined by the City. Retention shall be as provided in A.R.S. §34-221. This includes, but is not limited to, submittal of complete as constructed documents.
- B. The acceptance of final payment by the Contractor shall operate as a release to the City of all claims by the Contractor for all things done or furnished in connection with the Contract and for every act and neglect of the City, and others relating to or arising out of the Work under the Contract, except for claims made in writing and still unsettled, and specifically itemized at the time the final payment request is made.
- C. No payment, final or otherwise, shall operate to release the Contractor or his Surety from any obligations under the Contract or under the Performance Bond or Labor and Materials Payment Bond, including, but not necessarily limited to anyone or more of the following:
 - 1. Obligations arising from or relating to latent defects.
 - 2. Faulty or defective work or material, which does not comply with the requirements of the Contract.
 - 3. Failure of the construction, equipment, or fixtures to perform properly in accordance with the requirements of the Contract Documents.
 - 4. Unsettled claims.
 - 5. Claims for non-payment of laborers, mechanics, material men, or suppliers, or for equipment used or rented.
 - 6. Claims under the maintenance requirements of the Contract Documents or any special warranties provided for in the Contract Documents.

37. SUPERVISION BY CONTRACTOR

- A. The Contractor or his designated representative will be required to give personal attention to the fulfillment of this Contract and to keep the work under control and in accordance with the Schedule for Completion. The contractor shall provide a competent Representative with full authority to receive and execute such instructions, orders or directions as the Engineer, or his agents or representatives may issue in connection with the Contract.

The Contractor will supervise and direct the work at all times. He has the obligation to determine the means, methods, techniques, sequences and procedures of construction, except in those instances where the City, to define the quality of an item of work, specifies in the Contract a means, method, technique, sequence or procedure for construction of that item of work. The Contractor shall be responsible to perform the Work so that the quality of the Work conforms to the plans and the specifications while in progress and as finally completed.

- B. Instructions and information given by the City, Engineer, or his agents or representatives to the Contractor's representative on the work shall be considered as having been given to the Contractor. Before any work is done at the job site, the Contractor shall give written notice to the Engineer stating the name, home address and telephone number of the Contractor's representative. The Contractor shall also inform the Engineer in writing prior to any change of representative. A statement naming more than one person to be in charge depending upon which one is present at the time will not be acceptable.
- C. The Contractor shall file with the Engineer the names, addresses, and telephone numbers of representatives who can be contacted at any time in case of emergency. These representatives must be fully authorized and equipped to correct unsafe or excessively inconvenient conditions immediately on order of the Engineer.
- D. The Contractor shall pay and cause his Subcontractors to pay any and all accounts for labor, services, equipment, and materials used by the Contractor and his Subcontractors during the performance of work under this Contract, including all applicable taxes and insurance. Such accounts shall be paid as they become due and payable within the time limits set forth by law. The Contractor shall furnish proof of payment of such accounts to the City.
- E. The plan or method of work suggested by the City or the Engineer to the Contractor but not specified or required, if adopted or followed by the Contractor in whole or in part, shall be used at the risk and responsibility of the Contractor. The City and the Engineer assume no responsibility therefore and in no way will be held liable for any defects in the work which may result from or be caused by the use of such plan or method of work.**

38. WEATHER

- A. During periods when weather or other conditions are unfavorable for construction, the Contractor shall pursue only such portions of the work as shall not be damaged thereby. No portions of the work where acceptable quality or efficiency will be affected by unfavorable conditions shall be constructed while those conditions exist. It is expressly understood and agreed by and between the Contractor and the City that the Contract time for completion of

the work described herein is a reasonable time taking into consideration the average climatic and economic conditions and other factors prevailing in the locality of the work.

- B. The Contractor shall not be assessed liquidated damages, nor the cost of engineering and inspection during any delay in the completion of work caused by Acts of God, acts of the public enemy, acts of a public agency or owner, or a utility to provide for removal or relocation of existing utilities, unless such delay is caused in whole or in part by Contractor or any of its Subcontractors.
- C. A rain, windstorm, high water or other natural phenomena for the specific locality of the work, which might reasonably have been anticipated from historical records of the general locality of the work, shall not be construed as abnormal. It is hereby agreed that rainfall greater than the following cannot be reasonably anticipated:
 - 1. Daily rainfall equal to, or greater than, one inch during a month when the monthly rainfall exceeds the normal monthly average by fifteen percent or more.
 - 2. Daily rainfall equal to, or greater than one and one-half (1-1/2) inch at any time.

Rainfall data shall be collected at the job site by the Contractor.

39. OVERTIME

Any Work necessary to be performed after regular working hours, on Sundays, or legal holidays, shall be performed without additional expense to the City unless otherwise provided in the Contract Documents.

The Contractor is responsible for completing his work activities within regular working hours. Should the Contractor elect to run his crews more than a typical 8-hour day, he may elect to with prior coordination with the City. Any inspection, which is required beyond the City of Sedona's Standard 8 hour work day due to extended work hours or late daily cleanup, is subject to a withholding by the City from the Contractors progress payment for the cost of the overtime inspection during that period. The amount withheld shall be itemized by person and reflect any overtime premiums paid.

40. INDEMNIFICATION

- A. To the fullest extent permitted by law, the Contractor shall defend, indemnify and hold harmless the City, its agents, officers, officials and employees from and against all tortuous claims, damages, losses and expenses (including but not limited to attorney fees, court costs, and the cost of appellate proceedings), relating to, arising out of, or alleged to have resulted from the acts, errors, mistakes, omissions, work, and/or services of the Contractor, its agents, employees or any tier of Contractor's subcontractors in the performance of this Contract. Contractor's duty to defend, hold harmless and indemnify the City, its agents, officers, officials and employees shall arise in connection with any tortuous claim, damage, loss or expense that is attributable to bodily injury, sickness, disease, death, or injury to, impairment, or destruction of property including loss of use resulting there from, caused by Contractor's acts, errors, mistakes, omissions, work or services in the performance of this Contract including any employee of the Contractor, any tier of Contractor's subcontractor or any other person for whose acts, errors, mistakes, omissions, work or services the Contractor may be legally liable. The Contractor shall, with respect to all work which is covered by or incidental

to this Contract, indemnify and hold the City, Engineering Dept., all officers, employees, attorneys, agents of the City and the City Engineer, harmless from and against all of the following made by any person or entity not a party to this Agreement:

1. Any claim, liability, loss, damage, costs, expenses, including reasonable attorneys' fees, expert witness fees, court costs and other expenses of litigation, awards, fines, or judgments, arising by reason of the death or bodily injury to persons, injury to property, design defects (if design originated by Contractor only) or other loss, damage or expense, including any of the same resulting from any alleged or actual negligent or intentional acts or omissions of the Contractor, the Subcontractors, or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether it is caused in part by a party indemnified by this Contract and regardless of whether said acts or omissions of such party are active or passive.
 2. Any claim, liability, loss, damage, costs, expenses, including reasonable attorneys' fees, expert witness fees, court costs and other expenses of litigation, awards, fines, or judgments, arising out of any dispute regarding the Contract or any work performed under the Contract.
 3. Any claim, liability, loss, damage, costs, expenses, including reasonable attorneys' fees, expert witness fees, court costs and other expenses of litigation, awards, fines, or judgments, arising out of any dispute regarding the Contract or any work performed under the Contract by any Subcontractor.
 4. Any loss or damage that may happen to the work or any part thereof, and any loss or damage to any of the materials or other property used or employed in performing the work, including any loss or damage during transit or storage of any property or materials, including any property or materials furnished by the City, including reasonable attorneys' fees, awards, fines, or judgments.
- B. However, the Contractor shall not be obligated under this Contract to indemnify the City with respect to the sole negligence or willful misconduct of the City or its agents or employees or Design Engineer.
- C. The indemnity obligations of this Contract shall not be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnity which otherwise exists by statute or under the common law of the State of Arizona, except those in conflict with the express terms of these General Conditions. The law of comparative negligence, as adopted by the State of Arizona, shall be binding upon the relationship between the parties, except as set forth herein.**
- D. The amount and type of insurance coverage requirements set forth herein will in no way be construed as limiting the scope of the indemnity in this paragraph.

41. ACCIDENT PREVENTION - EMERGENCY - AUTHORITY TO ACT

After the Contract Notice to Proceed has been issued through final acceptance of the Contractor's work, it shall be the Contractor's responsibility for protection and safety of the public and workers 24 hours a day, seven days a week. This responsibility will also be placed on the Contractor after final acceptance when the Contractor is on site performing

any Guaranty/Warranty work.

Whenever, in the opinion of the Engineer, the Contractor has not taken sufficient precaution for the safety of the public or the protection of the work to be constructed under this Contract, or of adjacent structures or properly, and whenever, in the opinion of the Engineer, an emergency has arisen and immediate action is considered necessary, then the City, with or without notice may provide suitable protection by causing work to be done and materials to be furnished and placed. The cost of such work and materials shall be borne by the Contractor, and if the same is not paid on presentation of the bills, such costs will be deducted from any amounts due or to become due to the Contractor. The performance of such emergency work shall not relieve the Contractor of responsibility for any damage that may occur.

42. PROTECTION OF WORK

The Contractor, at no additional expense to City, shall at all times safely guard and protect his own Work; provide, erect, and maintain suitable barriers around all excavations or obstructions to prevent accidents; and provide, place, and maintain during the night sufficient lights, signals, and signs for this purpose on or near the Work. The Contractor shall at all times, until its completion and final acceptance, protect his Work apparatus, equipment, and material from accidental or any other damage; and make good any damages thus occurring at no additional cost to the City.

43. PROTECTION OF PROPERTY

- A. The Contractor, at no additional expense to the City, shall at all times (1) safely guard the City's property and abutting or adjacent property from injury, loss, or damage in connection with the Contract; (2) protect by false work, braces, shoring, or other effective means all buildings, foundations, walls, fences, property pins and other property along his line of Work, or affected directly by his Work, including, but not limited to the City's property, against damage; (3) cover or otherwise protect stockpiles of materials to avoid damage to any property from such materials; and/or (4) repair, replace, or make good any such damage, loss or injury, unless such is caused directly by the City or his duly authorized representatives.
- B. The Contractor shall exercise care to protect from injury all water lines, sanitary sewer lines, gas mains, telephone cables, electric cables, services pipes, and other utilities or fixtures which may be encountered during the progress of the Work. All utilities and other service facilities or fixtures if damaged, shall be repaired by the Contractor without additional compensation.
- C. The Contractor shall personally check and verify utility information on the plans. Where existing utilities or structures are shown on the plans or drawings, they are believed to be accurate but are not guaranteed to be such or that these are the only utilities or structures in the construction area. Protection is completely the responsibility of the Contractor and he must satisfy himself as to the existence and location of all utilities and structures.
- D. The Contractor shall give written notice of at least 48 hours before breaking ground, to all persons, superintendents, inspectors, or those otherwise in charge of property, streets, water, gas, or sewer pipes, telephone or electrical cables, railroads, or otherwise who may be affected by the Contractor's operation in order that they may remove any obstruction for

which they are responsible and have a representative on the site to see that their property is properly protected.

44. PROTECTION OF PERSONS

A. The Contractor shall:

1. At all times protect the lives and health of his employees under the Contract,
2. Take all necessary precautions for the safety of all persons on or in the vicinity of the Work site,
3. Comply with all applicable provisions of Federal, State, and Municipal safety laws and building codes, and
4. Comply with all pertinent provisions of the "Manual of Accident Prevention on Construction" issued by the Associated General Contractors of America, Inc., latest edition, to prevent accidents or injury to persons, on, or adjacent to the premises where the Work is being performed. He shall erect and properly maintain at all times, as required by the conditions and progress of the Work, all necessary safeguards for the protection of persons and shall post danger signs warning against the hazards created by such features of construction as protruding nails, rod hoists, well holes, elevator hatchways, scaffolding, window openings, stairways, and falling materials; and he shall designate a responsible member of his organization on the Work site whose duty shall be the prevention of accidents.

B. Contractor shall comply with all provisions of the "Occupational Safety and Health Act" (OSHA), including any amendments thereto and rules and regulations issued pursuant thereto, applicable to the Work and performance of the Contract. Whereas state in which Work is performed has passed legislation bearing on Occupational Safety and Health, such legislation and amendments thereto, together with rules and regulations issued pursuant thereto shall be complied with by the Contractor.

45. POTENTIALLY DANGEROUS WORK

A. When the use of explosives, driving, or removal of piles, wrecking, excavation Work or other similarly potentially dangerous Work is necessary for the prosecution of the Work, the Contractor shall exercise the utmost care so as not to endanger life or property. The Contractor shall be fully responsible for any and all damages, claims, and for the defense of any actions against the City resulting from the prosecution of such Work in connection with or arising out of the Contract.

B. The Contractor shall notify each public utility company or other owner of property having structures or improvements in proximity to the site of the Work, of his intent to perform potentially dangerous Work. Such notice shall be given sufficiently in advance to enable the companies or the owners of property to take such steps as they may deem necessary to relieve the Contractor of responsibility for all damages, claims, or the defense of any actions against the City resulting from the performance of such Work in connection with or arising out of the Contract.

C. All explosives shall be stored in a secure manner and all storage places shall be marked clearly "EXPLOSIVES-KEEP OUT", and shall be in the care of competent watchmen at all

times. Blasting Permits must be obtained from the Sedona-Oak Creek Fire District, 2860 Southwest Drive, Sedona, AZ 86336 (602) 282-6800.

46. PATENTS, COPYRIGHTS, AND ROYALTIES

- A. The Contractor shall assume all costs arising from the use of any patented article, material, device, equipment or process used or furnished by him in connection with, or incorporated in the Project. The Contractor shall save, and hold harmless the City and all officers and agents thereof from all damages, costs and expenses in law or equity (including attorneys' fees, expert witness fees, court costs, and other expenses of litigation) that may come at any time, arise or be set up by reason of any infringement or alleged infringement of any patent rights as a consequence of the installation or use of any such article, material, device, equipment or process in or about the Project. The Performance Bond required by Arizona Revised Statutes Section 34-221 shall be deemed to apply expressly to this provision of the Contract.
- B. Should the Contractor, his agent, employer or any of them be enjoined from furnishing or using any invention, article, material or plans supplied or required to be supplied or used under this Contract, the Contractor shall promptly pay such royalties and secure the requisite licenses; or, subject to acceptance by the City, substitute other articles, materials or appliances in lieu thereof which are of equal efficiency, quality, finish, suitability and market value to those planned or required under the Contract. Descriptive information of these substitutions shall be submitted to the Engineer for determination of general conformance to the Design concept and the Construction Contract. Should the City elect to refuse a substitution, the Contractor agrees to pay such royalties and secure such valid licenses as may be requisite for the City, his officers, agents and employees or any of them, to use such invention, article, material or appliance without being disturbed or in any way interfered with by any proceeding in law or in equity on account thereof.

47. CHANGE ORDERS FOR CHANGED OR EXTRA WORK

- A. The City reserves the right at any time during the progress of the Work to make necessary alterations of, deviations from, additions to, or deletions from the Contract, or may require the performance of extra Work neither covered by the specifications nor included in the Proposal, but forming a part of the Work contracted for; provided however, the Contractor shall not proceed with any such change or extra Work without a written Change Order approved by the City. Such changes or extra Work shall in no way injuriously affect or invalidate the Contract or the Contractor's bond, but the difference in cost shall be added to or deducted from the amount of the Contract, as the case may be. Adjustments, if any, in the amounts to be paid to the Contractor by reason of any such change or extra work shall be determined by one of the following methods in the order as listed:
 - 1. Method A Unit prices contained in the Contract Documents for the same type or class of Work.
 - 2. Method B By an acceptable unit price proposal from the Contractor.
 - 3. Method C By an acceptable lump sum price proposal from the Contractor.
 - 4. Method D If neither Method "B" or "C" can be agreed upon before the change or extra Work is started, then the Contractor shall be paid the "actual field cost" of the Work plus eighteen (18) percent or twelve (12) percent as stated herein below.

- B. Whenever any change or extra Work is to be done, for which unit prices for the same type or class of work are contained in the Contract Documents, such Work shall be done and shall be measured and paid for pursuant to Method A herein above set forth and the other applicable portions of the Contract Documents, subject to Article 30 of the General Conditions. Full compensation for taxes, overhead and other costs shall be considered as included in the unit prices bid.
- C. Methods B and C shall include an itemized cost breakdown including overhead and profit. In determining the amount payable to the Contractor, an additional five (5) percent may be added to the amount payable to a Subcontractor, but no "pyramiding" or additional percentage shall be authorized for any Work done by a Subcontractor. This percentage may be increased to seven (7) percent if the Contractor provides proof that it is paying transaction taxes for the subcontractor. The subcontractor percentage shall be considered as compensation for taxes paid on the subcontracted work, and any other costs or profit associated the subcontracted work. The taxes shall not be separately shown as a cost in the amount to which the seven percent is applied. Full compensation for taxes, overhead and other costs shall be considered as included in the unit price or lump sum price accepted whether such items are explicitly itemized or not.
- D. When any change or extra Work is performed under "Method D", the term "actual field cost" of such change or extra Work is hereby defined to be and shall include:
1. The actual wages paid to all the Contractor's workmen such as foremen, equipment operators, mechanics, and laborers, for the time actually performing the change or extra Work. Superintendents are considered as compensated for in the overhead.
 2. All of the Contractor's materials and supplies incorporated in the change or extra Work, unless the total cost for a particular material or supply is less than \$20. Materials and supplies with a total cost of less than \$20 will be considered as compensated for in the overhead and profit allowance.
 3. All machinery and equipment for the time actually employed or used in the performance of the changed or extra work shall be based on the submitted and approved schedule of equipment rates, unless the hourly cost for the machinery or equipment is less than \$25.00 per hour or \$150 per day. Items with rates less than \$25.00 per hour or \$150 per day will be considered as compensated for in the overhead and profit allowance. The contractor shall submit machinery and equipment rates for approval prior to Start of Construction.
 4. Any transportation charges necessarily incurred in connection with any equipment authorized by the City for use on said change or extra Work, but which is not already on site provided the transportation cost exceeds \$25.00.
 5. All power, fuel, lubricants, water, and similar operating expenses as well as other expendable materials.
 6. Incidental expenses incurred as a direct result of such change or extra Work, including payroll taxes and a pro rata portion of premium in the Performance Bond and Labor and Materials Payment Bond, and where the premiums therefore are based on payroll costs, on Public Liability and Property Damage insurance, Workmen's Compensation insurance, and Occupational Disease Disability insurance, Builder's Risk, and other insurance required by the Contract. **In order to be allowed these amounts shall be provided in writing when submitting the first request for a progress payment. These amounts payable by the City shall not change for the duration of the contract. The 12% mark-up shall not apply to these items.**

7. No repairs, replacements, or other forms of overhead expense shall be included in "actual field costs".
 8. The Engineer may adjust the amount due under this method based upon a reasonable estimate of the actual cost of performing deleted work in the case of a change in work method or work material. In this case the amount due shall be the difference between the estimated cost to perform work per the original method based on conditions known at the time of the change to the extent such conditions are not the basis for a change, and the method proposed to be used plus the unit bid price for the original method.
- E. The Engineer may direct the form in which the accounts of the actual field costs shall be kept and may also specify in writing, before the Work commences, the method of doing the Work and the type and kind of machinery and equipment, if required, which shall be used in the performance of any change or extra Work under method "D". In the event that machinery and heavy construction equipment are required for such change or extra Work, the authorization and basis of payment for the use thereof shall be stipulated in the written Change Order.
- F. The twelve (12) or eighteen (18) percent of the "actual field cost" to be paid to the Contractor shall cover and be full compensation for the Contractor's profits, overhead, superintendence, and field and home office expense, and all other elements of cost not embraced within the "actual field cost" as defined herein. Eighteen (18) percent shall be payable for Contractor costs for that portion of total change orders less than or equal to \$30,000. For that portion exceeding \$30,000 the twelve (12) percent factor shall be applied to Contractor costs. In determining the amount payable to the Contractor, an additional percentage per C above may be added to the amount payable to a Subcontractor, but no "Pyramiding" or additional percentage shall be authorized for any work done by Subcontractors.
- G. No claim for any change or extra Work of any kind shall be allowed unless the Work is ordered and approved in writing by the City in the form of a Change Order.
- H. No anticipated profits shall be allowed for Work deleted.
- I. If the City has work accomplished by other sources due the Contractor's failure to perform required work it may deduct an additional \$500 or 5% of the cost of accomplishing the work, whichever is greater, in addition to the cost of accomplishing the work using other sources. The City shall consider this additional amount as compensation for overhead and administration.
- J. The Contractor shall furnish satisfactory bills, payrolls, and vouchers covering all items of cost and when requested by the City, give the City access to accounts relating thereto.
- K. Any Change or extra work shall be considered a part of the Contract, subject to all of its terms, conditions, stipulations, review, guaranties, and tests may be performed without notice to the surety on the Contractor's bond. The Contractor and surety hereby agree to these provisions.
- L. The following language shall apply to all change orders:
"THIS CHANGE ORDER CONSTITUTES FULL, FINAL, AND COMPLETE COMPENSATION TO THE CONTRACTOR FOR ALL COSTS, EXPENSES, OVERHEAD, PROFIT, AND ANY DAMAGES OF EVERY KIND THAT THE CONTRACTOR MAY INCUR IN CONNECTION WITH THE WORK DESCRIBED IN

THIS CHANGE ORDER, INCLUDING ANY IMPACT ON THE DESCRIBED WORK OR ON ANY OTHER WORK UNDER THE CONTRACT, ANY CHANGES IN THE SEQUENCES OF ANY WORK, ANY DELAY TO ANY WORK, ANY DISRUPTION OF ANY WORK, ANY RESCHEDULING OF ANY WORK, AND ANY OTHER EFFECT ON ANY OF THE WORK UNDER THIS CONTRACT. BY THE EXECUTION OF THIS CHANGE ORDER, THE CONTRACTOR ACCEPTS THE CONTRACT PRICE CHANGE AND THE CONTRACT COMPLETION DATE CHANGE, IF ANY, AND EXPRESSLY WAIVES ANY CLAIMS FOR ANY ADDITIONAL COMPENSATION, DAMAGES OR TIME EXTENSIONS, IN CONNECTION WITH THE DESCRIBED WORK.”

- M. The Contractor shall not be entitled to adjustments in contract price or contract time related to submittal of any cost estimates.

48. PROCEDURE FOR REQUESTING CHANGE ORDERS –EXTRA

- A. In case any instructions, either oral or written, appear to the Contractor to involve a change or extra Work for which, in his opinion, he should receive extra compensation, he shall make a written request to the Engineer for a written Change Order authorizing such change or extra Work. Should a difference of opinion arise as to what does or does not constitute a change or extra Work, or concerning the payment thereof, and the City insists on conformance, the Contractor shall proceed with the Work after presenting written notice of claim for extra cost to the City and shall keep an accurate account of the "actual field cost" thereof as provided for in Method "D" under "Changed or Extra Work". The Contractor shall thereby not waive any right he might have to compensation for the claimed "extra cost" in connection with a change or extra Work. The matter shall be submitted to the City for final determination as to whether or not a change or extra Work was involved, and if so, the amount due to the Contractor.
- B. Any claims for extra cost pursuant to this section, together with supporting documents and receipts, must be filed within ten (10) consecutive calendar days after performing the Work for which extra cost is claimed. The City shall have the right to reject any claim for extra cost if the foregoing procedure is not followed.
- C. In giving instructions, the Engineer shall have the authority to make minor changes that do not involve extra cost or time of performance and are not inconsistent with the design concept and purposes of the contracted Work; but otherwise, except in an emergency endangering life or property, no change or extra Work shall be performed unless authorized by a written "Change Order" approved by the City Council or its designee in accordance with the City Code, and no claim for extra cost shall be valid unless so approved, except as otherwise provided herein.

49. PROCEDURE FOR REQUESTING CHANGE ORDERS--EXTRA TIME

- A. The Contract time may be changed only by a change order either alone or in conjunction with other changes. Any claim for an extension of Contract time shall be based on written notice delivered to the Engineer within seven days of the occurrence of the event giving rise to the claim. Notice of the extent of the claim with supporting data shall be delivered within forty-five days of such occurrence unless Engineer allows an additional period of time to ascertain more accurate data. Notice of the extent of the claim must state the cause of the delay, the date of occurrence causing the delay, and the amount of additional time requested. Requests

for extensions of time shall be supported by all evidence reasonably available or known to the Contractor, which would support the extension of time requested. If the Contractor is requesting an extension of time because of weather, he shall supply daily written reports to the Engineer describing such weather and the work which could not be performed that day because of such weather or conditions resulting there from and which he otherwise would have performed. The Engineer's acceptance of the daily reports shall not be deemed an admission of the Contractor's right to receive an extension of time or waiver of the City's right to strictly enforce the time provisions contained in the Contract Documents. Requests for extensions of time failing to include the information specified in this Article and requests for extension of time which are not received within the time specified above shall result in the forfeiture of the Contractor's right to receive any extension of time requested. Any change in the Contract time resulting from any such claim shall be incorporated in a change order. The percentages specified in Section 38 and 47 G above shall be considered to include full compensation for each day or portion thereof of extra time.

- B. The Contract time will be extended in an amount equal to time loss due to delays beyond the control of Contractor if a claim is made there for as provided in paragraph A. Such delays shall include, but not be limited to, acts or neglect by City or others performing additional work, or to fires, floods, labor disputes, epidemics, abnormal weather conditions, or act of God. No extension of the Contract time will be granted where the delay is attributable to a Subcontractor, manufacturer, fabricator, supplier or distributor or any other party performing services or furnishing material or equipment on behalf of the Contractor unless such party's delay is attributable to one of the above enumerated causes. Time limits concerning substantial completion and final completion as stated in the Contract Documents are of the essence.
- C. An extension of time may be granted by the City after the expiration of the time originally fixed in the Agreement or as previously extended, and the extension so granted shall be deemed to commence and be effective from the date of such expiration. However, such extension shall not be deemed to be a release of any of the City's rights under the Contract Document unless expressly stated as such.

50. DIFFERING SITE CONDITIONS

If conditions or objects are encountered at the site which are (1) sub-surface or otherwise concealed and which differ materially and substantially from those indicated or anticipated in the Contract Documents or (2) are of an unusual nature, which differ materially and substantially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, then notice, in writing, by the Contractor shall be given to the City promptly before conditions are disturbed and in no event later than 24 hours after first observance of the conditions. The City shall promptly investigate such conditions and, if they differ materially and substantially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, shall provide an equitable adjustment in the Contract Amount or Contract Period, or both as per Sections 47 through 49 of these General Conditions. If the City determines that the conditions at the site are not materially and substantially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the City shall so notify the Contractor in writing, stating the reasons. No claim by the Contractor for an equitable adjustment shall be allowed if asserted after final payment has been made under this agreement. Weather, and the effects of weather on surroundings, surface, or subsurface are to be anticipated

and do not constitute a differing condition. No contract change, which results in a benefit to the Contractor, shall be allowed unless the contractor has provided the required written notice. No contract adjustment will be allowed under this section for any effects caused on unchanged work.

51. WARRANTY PERIOD

- A. Besides guarantees required elsewhere, the Contractor shall and hereby does guarantee all work for a period of two years (731 days) after the date of final acceptance of the work by the City and shall repair and replace any and all work together with any other work, which may be displaced in so doing, that may prove defective in workmanship or materials within the two-year period from the date of final acceptance, without expense whatsoever to the City, ordinary wear and tear and unusual abuse or neglect excepted. If the Contractor is required to repair or replace any portion of the Project pursuant to the two-year guarantee provided by this section, the repair or replacement shall similarly be guaranteed for an additional one-year period from the date of completion of the repair. In the event of failure to comply with the above mentioned conditions, within a week (seven consecutive days) after being notified in writing by the City, the City is hereby authorized to proceed to have the defects repaired and made good at the expense of the Contractor, who hereby agrees to pay the cost and charges therefore immediately upon demand by the City. In case of emergency, where, in the opinion of the City, delay could cause serious loss or damage, repairs may be made without notice being sent to the Contractor and the expenses in connection therewith shall be charged to the Contractor.
- B. The Contractor guarantees to the City that all materials and equipment furnished under this Contract will be new and of good and sufficient quality, free from faults and defects as is necessary to complete the project as required by the plans and specifications.
- C. The City and the Contractor agree that the guarantee on the equipment possessed and used by the City, in accordance with Article 34 of these General Conditions, shall commence on the date that the City takes possession of the equipment and so notifies the Contractor in writing. City and Contractor further agree that such taking possession and use shall not be deemed as acceptance of any part of the work. Take-over of equipment may occur when such equipment can be put into routine service on a permanent basis at City's discretion.

52. AUTHORITY OF ENGINEER

- A. The Engineer shall furnish engineering services during construction of the Work to the extent provided in the Contract Documents. He shall observe and review the Work in the process of construction or erection. Compliance with the Contract Documents shall be the Contractor's responsibility notwithstanding such observation or review. The Engineer has authority to recommend suspension of the Work when it appears such suspension may be necessary to accomplish the proper implementation of the intent of the Contract Documents. The authority to observe, review, or recommend suspension of all or any portion of the Work, or exercise such other authority as may be granted by the Contract Documents, shall not be construed or interpreted to mean supervision of construction, which is the Contractor's responsibility, nor make the Engineer responsible for providing a safe place for the performance of Work by the Contractor or by the Contractor's employees or those of suppliers or subcontractors or for access, visits, use, work, travel, or occupancy by any other person. The provisions of MAG Sections 104.1.4 and 104.2.5 as contained in the 2012 edition apply to this contract.

- B. The Engineer shall have authority to reject any or all Work, materials, or equipment, which do not conform to the Contract Documents, and to decide technical questions, which arise in the execution of the Work. The Engineer shall determine the amount, quality, acceptability, and fitness of the several kinds of Work, materials, equipment, and supplies which are to be paid for under the Contract and shall decide all questions which may arise in relation to said Work and the construction thereof. The Engineer's estimates and decisions shall be final and conclusive, except as otherwise expressly provided. In case any question shall arise between the parties to the Contract relative to the Contract Documents, the determination or decision of the Engineer shall be a condition precedent to the right of the Contractor to receive any money or payment for Work under the Contract affected in any manner or to any extent by such question.

53. DECISIONS OF THE CITY

If the Contractor is not in agreement with any final decision of the Engineer, then he may appeal, in writing, such decisions to the City Manager, who shall within a reasonable time after presentation, make decisions in writing on claims properly made by the Contractor. The appeal shall contain the final decision of the Engineer as an attachment, or in the absence of such final decision a copy of a certified letter sent to the Engineer, at least 15 days prior to the appeal, requesting such a final decision in writing. The decision of the City Manager shall be regarded as final.

54. TEMPORARY SUSPENSION OF THE WORK

- A. The City Manager may, upon the recommendation of the Engineer, or by the Manager's own determination, suspend the work.
- B. Should the discovery of a potential archaeological or historic resource occur during construction, the Contractor shall cease work at that site, immediately notify the Engineer, and shall not proceed until instructed to do so by the City. In the event such a suspension of the work occurs, the provisions of Article 49 shall apply to extend the time for final completion of the work.

55. AUTHORITY AND DUTIES OF CITY'S FIELD REPRESENTATIVE

- A. Inspectors may be placed on the Work to keep the City informed as to the progress of the Work and the manner in which it is being done; to keep records; act as liaison between the Contractor and the City; and to call the attention of the Contractor to any deviations from the Contract Documents. However, failure of the inspector to call the attention of the Contractor to faulty work or deviations from the Contract Documents shall not constitute acceptance of said Work.
- B. The inspector cannot control how the material is used; therefore, the responsibility for its safety and proper use shall be the Contractor's. Until the job is finally completed, the Contractor may do work that changes or modifies work previously done, and even though at any given time, a piece of work might be well done and acceptable in quality, the responsibility for keeping it in that condition until the Work is complete is the sole responsibility of the Contractor. For this reason, it is impossible to accept, finally, any portion of a project until the project as a whole is accepted and control of said project is transferred from the Contractor by final official written acceptance by the City.

- C. **Any personal assistance which an inspector may give the Contractor will not be construed as the basis of any assumption of responsibility in any manner, financial or otherwise, by the inspector or the City.**
- H. The inspector is not and does not purport to be a Safety Engineer and is not engaged in that capacity by the City and shall have neither authority nor the responsibility to enforce construction safety laws, rules, regulations, procedures, or the safety of persons on and about the construction site.
- E. The presence or absence of an inspector on any job will be at the sole discretion of the City, and such presence, or absence of an inspector will not relieve the Contractor of his responsibility to obtain the construction results specified in the Contract Documents.
- F. The inspector is not authorized to approve or accept any portion of the Work or to issue instructions contrary to the Contract Documents. Approvals, acceptance or instructions, when given, must be in writing and signed by the City. The inspector shall have authority to reject defective materials; however the failure of the inspector to reject defective material or any other Work involving deviations from the Contract Documents shall not constitute acceptance of such Work.
- G. Nothing in this subsection shall in any way be so construed as to require or to place responsibility for the method, manner or supervision of the performance of the Work under this Contract upon the inspector, or the City. Such responsibility rests solely with the Contractor.

56. CHARACTER OF WORKERS, METHODS, AND EQUIPMENT

- A. The Contractor shall at all times employ sufficient skilled labor in accordance with Federal, State and local labor laws; and the proper equipment for completing the project in the manner and time required by the Contract. All equipment, which is proposed to be used on the project, shall be of sufficient size and in such mechanical condition as to meet requirements of the work and to produce a satisfactory quality of work. Equipment used on any portion of the project shall be used such that it will not damage property adjacent to the work area.
- B. Any person employed by the Contractor or any Subcontractor who, in the opinion of the Engineer, does not perform his work in a proper and skillful manner or is intemperate or disorderly shall, at the written request of the Engineer, be removed from the work by the Contractor or Subcontractor employing such person, and shall not be employed again in any portion of the work without the approval of the Engineer. Should the Contractor or Subcontractor fail to remove such person as required above, or fail to furnish suitable and sufficient personnel for the proper prosecution of the work, the Engineer may suspend the work by written notice until such orders by the Engineer are followed by the Contractor. The Contractor or Subcontractor shall hold the City harmless from damages or claims for compensation that may occur in the enforcement of this section.
- C. The City may require submittal of Certified Payrolls at any time from the Contractor showing the employee names, addresses, Social Security Numbers, rates of pay, payments received, payroll deductions, occupational classification(s), and hours per day worked in such classification(s) for work performed on this project by employees. The contractor shall retain

such records for the minimum time required by law or three years after project completion, whichever is longer. The Contractor shall also be responsible to produce upon request from the City such payroll records from its subcontractors.

57. WARRANTY OF COMPLIANCE WITH STATE AND FEDERAL LAW

CONTRACTOR understands and acknowledges the applicability to it of the Americans with Disabilities Act, the Immigration Reform and Control Act of 1986 and the Drug Free Workplace Act of 1989. CONTRACTOR must also comply with A.R.S. § 34-301, "Employment of Aliens on Public Works Prohibited," and A.R.S. § 34-302, as amended, "Residence Requirements for Employees."

- A. Under the provisions of A.R.S. § 41-4401, CONTRACTOR hereby warrants to CITY that CONTRACTOR and each of its subcontractors will comply with, and are contractually obligated to comply with, all Federal Immigration laws and regulations that relate to their employees and A.R.S. § 23-214(A) (hereinafter "Contractor Immigration Warranty").
- B. A breach of the Contractor Immigration Warranty shall constitute a material breach of this contract and shall subject CONTRACTOR to penalties up to and including termination of this contract at the sole discretion of CITY.
- C. CITY retains the legal right to inspect the papers of any contractor or subcontractor employee who works on this contract to ensure that the contractor or subcontractor is complying with the Contractor Immigration Warranty. CONTRACTOR agrees to assist CITY in regard to any such inspections.
- D. CITY may, at its sole discretion, conduct random verification of the employment records of CONTRACTOR and any subcontractors to ensure compliance with Contractor's Immigration Warranty. CONTRACTOR agrees to assist CITY in regard to any random verification performed.
- E. Neither CONTRACTOR nor any subcontractor shall be deemed to have materially breached the Contractor Immigration Warranty if CONTRACTOR or any subcontractor establishes that it has complied with the employment verification provisions prescribed by sections 274A and 274B of the Federal Immigration and Nationality Act and the E-Verify requirements prescribed by A.R.S. § 23-214, Subsection A.
- F. The provisions of this article must be included in any contract that CONTRACTOR enters into with any and all of its subcontractors who provide services under this contract or any subcontract. "Services" are defined as furnishing labor, time or effort in the State of Arizona by a contractor or subcontractor. Services include construction or maintenance of any structure, building or transportation facility or improvement to real property.
- G. Affidavit of Lawful Presence. Pursuant to ARS 1-502, the City must require any person receiving a public benefit in the form of a contract for services sign an Affidavit of Lawful Presence in the form shown in Section 57H with appropriate documentation to verify their lawful presence in the United States. This affidavit must be signed and kept on file with the City by the Contractor, and any subsequent supplier or subcontractor to this contract.

H. Affidavit of Lawful Presence Form
(See next Page showing Affidavit Form)



CITY OF SEDONA, ARIZONA
AFFIDAVIT DEMONSTRATING LAWFUL PRESENCE IN THE UNITED STATES

ARS §1-502 requires that any person who applies to the City for a local public benefit (defined as a grant, contract, loan, professional license, or commercial license) must demonstrate through the presentation of one of the following documents that he/she is lawfully present in the United States.

LAWFUL PRESENCE IN THE UNITED STATES CAN BE DEMONSTRATED BY PRESENTATION OF ONE (1) OF THE DOCUMENTS LISTED BELOW.

Please place a check mark next to the applicable document and present the document to the City employee. If mailing the document, attach a copy of the document to this Affidavit. (If the document says on its face that it may not be copied or you know for reasons of confidentiality that it cannot be copied, you will need to present the document in person to the City for review and signing of the affidavit.)

- 1. An Arizona driver license issued after 1996. Print first 4 numbers/letters from license: [] [] [] []
2. An Arizona non-operating identification License. Print first 4 numbers/letters: [] [] [] []
3. A birth certificate or delayed birth certificate issued in any state, territory or possession of the United States. Year of birth: _____ Place of birth: _____
4. A United States Certificate of Birth abroad. Year of birth: _____ Place of birth: _____
5. A United States passport. Print first 4 numbers/letters from Passport: [] [] [] []
6. A foreign passport with a United States Visa. Print first 4 numbers/letters from Passport [] [] [] []
Print first 4 numbers/letters from Visa [] [] [] []
7. An I-94 form with a photograph. Print first 4 numbers from I-94: [] [] [] []
8. A United States Citizenship and Immigration Services Employment Authorization Document (EAD). Print first 4 numbers/letters from EAD: [] [] [] []
9. Refugee travel document. Date of Issuance: _____: Refugee Country: _____
10. A United States Certificate of Naturalization. Print first 4 digits of CIS Reg. No.: [] [] [] []
11. A United States Certificate of Citizenship. Date of Issuance: _____ Place of Issuance: _____
12. A tribal Certificate of Indian Blood. Date of Issuance: _____: Name of Tribe: _____
13. A tribal or Bureau of Indian Affairs Affidavit of Birth. Year of Birth: _____ Place of Birth: _____

In accordance with the requirements of State Law, I do swear or affirm under penalty of perjury that I am lawfully present in the United States and that the document I presented to establish this presence is true.

Signature

Business/Company

Print Name

Business Address

Date: _____

City, State, Zip Code

58. QUALITY CONTROL AND TESTING

- A. The Contractor will support the Testing Company when contracted by the City for Quality Control and testing for specification compliance and assurance.
- B. During the progress, the Work shall be subject to the review and observation of the City. The Contractor shall afford every reasonable facility and assistance to the City to make such review. If any Work is covered up without approval or consent of the City, it will be uncovered for examination at the Contractor's expense.
- C. The fact that the City is on the job site shall not be taken as an acceptance of the Contractor's Work or any part of it. The Contractor shall notify the City upon completion of his Contract, and the Work shall be given final construction review by the City, and any tests and re-tests shall be witnessed by the City or his representative. If all parts of the Work are acceptable and substantially comply with the intent of the Contract Documents, initial acceptance shall be made by the City. If parts of the Work are not acceptable and require additional Work or rework by the Contractor to complete the Project, such costs shall be borne by the Contractor.
- D. Contractor shall submit to the City, ten (10) days in advance of construction and without charge, samples or specifications of materials he proposes to use and shall not use these materials until he has received approval from the City.
- E. Contractor shall furnish tests and reports on tests of all materials, equipment and installations called for in the Contract Documents. The testing laboratory must be approved by the City and the Contractor shall pay the cost of the tests, and necessary re-tests, including all transportation charges unless otherwise provided by the Contract Documents.
- F. Required certificates of inspection, testing, or compliance shall be secured by the Contractor and promptly delivered by him to the Engineer.
- G. The City reserves the right to perform additional inspections and testing deemed appropriate with their own forces or with outside consultants or testing agencies. Should such inspection or testing reveal work that is not in compliance with Contract Documents, such costs of inspection or testing, and any required rework shall be borne by the Contractor.
- H. Following is a summary of minimum frequency of testing the city shall require. This list is a partial list of major items of work, if an item is a part of the project and not listed the Contractor shall provide testing for that item. The Contractor shall provide the appropriate tests for the activities a part of the project. The City reserves the right to request a greater frequency for the testing.

The following frequencies are based on a maximum of 8" lifts. When the lifts are greater than 8", the frequency of testing shall increase proportionately with the increased depth of lift.

Activity	Frequency
Roadway Fills	1 each 300 ft per lift
AB Subgrade	1 each 300 ft per lift
AC Pavement	1 each 300 ft per lift
Trench Backfill	1 each 300 ft per lift
Concrete Curb & Gutter	4 cylinders per 50 cy concrete
Concrete Sidewalk	4 cylinders per 50 cy concrete

59. TERMINATION OF CONTRACT

- A. The City may, at any time, terminate the Contract at the City's convenience and without cause. Such termination shall be effective upon receipt by Contractor of written notice from the City of such termination for the City's convenience. Contractor shall cease operations as directed by the City in the notice of termination and take actions necessary, or that the City may direct, for the protection and preservation of the Work. In the event of a termination for convenience, the Contractor shall be paid only the direct value of its completed Work and materials supplied as of the date of termination, and Contractor shall not be entitled to anticipated profit or anticipated overhead or any other claim of damages from the City. Further, in the event a termination of the Contractor for cause is determined to have been without legal right, then the termination shall be deemed to have been a termination for convenience.
- B. If the Contractor refuses or fails to prosecute the work or any separable part thereof with such diligence as will ensure its completion within the time specified herein, or any extension thereof granted in the manner specified herein, or fails to complete the work within such time, or if the Contractor fails to comply with any written order of the Engineer or the City or fails to timely pay Subcontractors, material, men, or laborers, or if the Contractor should be adjudged bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, or if he or any of his Subcontractors should violate any of the provisions of the Contract, then the City may serve written notice upon the Contractor and his surety of its intention to terminate the Contract and, unless within ten (10) days after the service of such notice such violations of the Contract cease and satisfactory arrangements for the corrections thereof are made, the Contract shall without further notice, upon the expiration of said ten (10) days or such extensions thereof as may be expressly granted by the City in writing, cease and terminate.
- C. In the event of any such termination, the Contract shall be deemed terminated and not rescinded. Following such termination of the Contract, the City will take possession of the Project and of all materials, equipment, tools, construction equipment and machinery thereon owned by the Contractor, and finish the Project by whatever method the City may deem expedient. In such case the Contractor shall not be entitled to receive any further payment until the work is finished, or completion is permanently suspended by the City. If the unpaid balance of the Contract price exceeds the direct and indirect costs of completion of the project, including compensation for additional professional service, including but not limited to fees charged by the City's attorney, such excess shall be paid to the Contractor. If such costs or liquidated or actual damages as provided by this Contract exceed such unpaid balance, the Contractor shall pay the difference to the City. Such additional costs and any liquidated or actual damages due to the City under this Contract will be determined by the City Manager and be submitted to the City Council in the form of a Change Order to the Contract.

- D. Any extensions of time granted by Change Order or other extensions granted by the Council do not constitute a waiver of the City's right to terminate the Contract pursuant to this section for the Contractor's failure to complete the Project within the time specified in the Contract and any authorized extensions thereto, nor do such extensions constitute a waiver of the City's right to collect liquidated damages.
- E. If the work is stopped by order of a court, public authority, or the City for a period of ninety (90) calendar days or more, through no act or fault of the Contractor, anyone employed by such Contractor or his Subcontractors, then the Contractor may terminate the Contract in accordance with these Contract Documents.

60. TIME IS OF THE ESSENCE

It is mutually understood and agreed by and between the parties to the Contract that in the execution of the same, time is an essential element of the Contract, and it is important that the Work progress vigorously to completion.

61. LIQUIDATED DAMAGES

For each and every calendar day that work shall remain uncompleted after the time specified for the completion of the work in the Contract, or as adjusted by a change order, the sum per calendar day, as stipulated in the Advertisement for Bids, shall be deducted from any money due or to become due to the Contractor, not as forfeit or penalty, but as liquidated damages. This sum is fixed and agreed upon between the parties because the actual loss to the City and to the public caused by delay in completion will be impractical and extremely difficult to ascertain and determine. It is agreed that the City has made a good faith attempt to estimate the loss caused by any delays and that the estimate is incorporated in the sum, which is agreed to be reasonable. If the City allows the Contractor to complete or attempt to complete the work subsequent to the date of completion specified herein, such action shall not constitute a waiver by the City of the imposition of the liquidated damages provision as specified herein.

62. CITY'S REMEDIES CUMULATIVE AND NONWAIVER

No right or remedy conferred upon or reserved to the City by the Contract shall be considered exclusive of any other remedy or contractual right, but the same shall be distinct, separate, and cumulative, and shall be in addition to every other remedy existing at law or in equity or by statute; and every remedy given by the Contract to the City may be exercised from time to time as often as the occasion may arise, or as may be deemed expedient. No delay or omission on the part of the City to exercise any right or remedy arising from any default on the part of the Contractor shall impair such right or remedy or shall be construed to be a waiver of any such default or an acquiescence thereto, or otherwise affect the right of the City to enforce the same in the event of any subsequent breach or default by the Contractor.

63. SEVERABILITY CLAUSE, DISPUTE RESOLUTION, APPLICABLE LAW

- A. This Contract shall be governed by the laws of the State of Arizona, and venue for any litigation arising out of this Contract shall be in the Superior Court of the State of Arizona in and for the County of Coconino or the County of Yavapai, depending upon the location of the work, if the amount in dispute is in excess of \$5,000.00. If the amount in dispute is less

than \$5,000.00, jurisdiction and venue shall lie in the nearest Justice of the Peace Court of the appropriate county. Arbitration shall not be an alternative method of settling disputes unless separately agreed upon in writing by the parties. This Contract shall not be construed to create any contractual relationship of any kind between the Engineering Dept., and the Contractor or any Subcontractor, or between the City and any Subcontractor. During any dispute arising hereunder, the Contractor shall continue to perform all work in accordance with the Contract Documents. In the event of any dispute arising hereunder, the prevailing party in the resolution of such dispute shall be entitled to recover its attorney's fees and costs incurred.

- B. The provisions of this Contract shall be deemed to be severable, and if any term, phrase or portion of the Contract shall be determined to be unlawful or otherwise unenforceable, the remainder of the Contract shall remain in full force and effect.
- C. Any and all disputes relating to this Contract shall be subject to the provisions of Chapter 3.10 of the Sedona City Code. The City Code can be viewed on the City of Sedona website, as well as, the City Clerk's Office, City Hall, Sedona, Arizona.
- D. Notwithstanding the mediation provisions set forth in Paragraph 62.C above, either party may submit, by demand letter, correspondence or notice, to the other party, any claim, counterclaim, dispute or other matter in question between the Contractor and the City arising out of or relating to this Contract, the Contract Documents, the Plans, the Project or the Work, or breach thereof, and such claim, counter claim, dispute or other matter in question shall be subject to and decided by arbitration in accordance with the Rules for Non-Administered Arbitration of Business Disputes { the "Rules") of the Center for Public Resources ("CPR") currently in effect, except as provided herein and except where modified by the provisions hereof.
- E. Any arbitration arising out of this Contract, the Contract Documents, the Plans, the Project or the Work, or any breach thereof may include, by consolidation or joinder, or in any other manner, at the discretion of either the Contractor or the City, any other entities or persons whom the Contractor or the City, as the case may be, believes to be substantially involved in a common question of law or fact.
- F. All demands for arbitration and all responses thereto that include any monetary claim, must contain a statement that the total sum or value in controversy as alleged by the party making such demand or response is not more than \$150,000.00 (exclusive of interest and arbitration fees and costs). The arbitrators will not have jurisdiction, power or authority to consider or make findings except the denial of their own jurisdiction concerning any controversy where the amount at issue is more than \$150,000.00 (exclusive of interest and arbitration fees and costs) or to render a monetary award in response thereto against any party which totals more than \$150,000.00 (exclusive of interest and arbitration fees and costs). Notwithstanding the foregoing provisions, the parties may mutually agree to waive the jurisdictional limitations set forth in this sub-paragraph. In the event of such mutual waiver, all other provisions in this sub-paragraph shall apply.
- G. Demand for arbitration shall be filed with the other party in accordance with Rules. A demand for arbitration shall be made within a reasonable time after the claim, dispute, or other matter in question has arisen. In no event shall the demand for arbitration be made after the date

when institution of legal or equitable proceedings based on such claim, dispute or other matter in question could be barred by the applicable statute of limitations.

- H. In the event the amount in controversy is less than \$50,000.00 a sole arbitrator shall be appointed in accordance with Rules. In the event the amount in controversy is \$50,000.00, the demanding party shall appoint one party-appointed arbitrator in its notice demand for arbitration. The responding party may within ten (10) days, appoint a second party-appointed arbitrator. The party-arbitrators shall appoint a third arbitrator in accordance with the Rules. If the party-arbitrators fail to appoint a third arbitrator, the third arbitrator shall be appointed in accordance with the Rules. If the responding party fails to appoint a second party-appointed arbitrator within the time so provided, selection of the second arbitrator shall be in accordance with the Rules.
- I. The decision of the arbitrators shall be in accordance with laws of the State of Arizona and the United States. The arbitrators shall prepare written findings of fact and conclusions of law upon which the decision and award shall be based. The arbitrators may award compensatory damages and attorneys' fees and costs to the prevailing party. The arbitrators shall have no authority to award consequential damages or punitive damages, and the parties hereby waive any claim to those damages to the fullest extent allowable by law.
- J. The demanding party shall select the locale of arbitration, but shall not choose a location greater than twenty-five (25) miles from the Project site.
- K. This agreement to arbitrate shall be specifically enforceable by either party under the prevailing laws of the State of Arizona and the United States. Any award rendered by the arbitrators shall be final and enforceable by any party to the arbitration, and judgment shall be made upon it in accordance with the applicable laws of any court having jurisdiction thereof. The arbitrators' decision shall be final and conclusive as to the facts. Either party may appeal manifest errors of law to a court of competent jurisdiction within fifteen (15) days of the award.
- L. Unless otherwise agreed in writing, and notwithstanding any other rights or obligations of either of the parties under the Contract, the Contractor and the City shall carry on with the performance of their respective duties, obligations and services hereunder during the pendency of any claim, dispute or other matter in question giving rise to arbitration or mediation, as the case may be. The City shall be under no obligation to make payments to the Contractor on or against such claims, disputes or other matters in question giving rise to arbitration or mediation, during the pendency of such arbitration or mediation or other proceedings to resolve such claims, disputes or other matters in question.

64. POTHOLING REQUIREMENTS

The Contractor shall pothole all existing utilities 1000 feet ahead of trenching activities to allow adequate time and distance to allow for the adjustment of grade or location of the construction activities. The contractor shall pothole at least 2 working days ahead of installing facilities such as manholes, sidewalks, stormdrainage inlets, footing, headwalls, and similar non-longitudinal installations. The Contractor shall backfill the pothole after verifying the depth, size and location of the utility. If a potential conflict is encountered, temporarily plating the potholed utility will be allowed for review and coordination of a resolution of the conflict with the City and affected utilities representatives.

The City requests a minimum of 108 hours notification of a potential conflict for marked utilities. This requirement does not relieve the Contractor of the responsibility to make the City aware of conflicts timely of the Contractor's awareness. If potholing 1000 feet in advance of trenching activities has not been kept up and a conflict creates down time or delays in work no extension of time or compensation for down time will be considered for that conflict.

65. UNMARKED UTILITY REPAIR

If in the course of work, a conflicting utility line that was not shown on the plans is discovered, the Contracting Agency will either negotiate with the owner of the Utility for relocation, change the alignment and grade of the trench or roadbed, provide encasement or sleeving, relocate the utility, or as a last resort, declare the conflict as "extra work" to be accomplished by the Contractor in accordance with Section 47 of these General Specifications. In the case of unmarked or incorrectly marked utilities the Contractor shall consider that responsibilities are per Arizona State Statutes Section 40 –360.

The Contractor shall contact the City and utility affected immediately upon damaging or breaking an unmarked utility. If an unmarked utility is found the Contractor shall take every precaution to not damage the utility and work around the conflict with the City and Utility representatives. No interpretation of this provision that changes the responsibility for non-located and improperly located utilities per Arizona State Statutes Section 40 –360 shall be valid.

66. UTILITY SEPARATION

The Contractor shall maintain as a minimum 1 foot of vertical clearance and 3 feet of horizontal clearance for all utility crossings. Water/sewer minimum separations will be 2 feet vertical clear and 6 feet horizontal clear. If less than one foot but more than six inches clearance is all that can be accommodated concrete encasement shall be provided.

67. NOTIFICATION TO RESIDENTS & COMMUNITY RELATIONS

The Contractor shall inform the residents along the construction area of the proposed work. This notification and community relations shall include, but not necessarily be limited to:

A. Mailings

The Contractor shall prepare a letter for mailing to the residents located adjacent to the project. This mailing will include a description of work to be done, work hours, date's for begin and end construction, Contractor representative contact name and phone number. The cost for the mailings shall be incidental to the project.

B. Informational Signage

The Contractor shall provide and install advance information signs and project information signs before beginning construction to inform the public of the forthcoming project, construction dates, and suggested alternate routes. Sign layout shall be as approved by the Engineer. Signs shall not be constructed or installed prior to approval by the Engineer for the designs, sizes and locations. The Contractor shall maintain the signs as necessary and update the information as requested by the Engineer. The information signs shall be shown on the

traffic control plan. The cost for this work shall be included in the unit bid price for Mobilization.

C. Meetings

The Contractor may be requested to attend and participate in a pre-construction public meeting if deemed necessary by the Engineer. Meeting time, location and agenda will be determined by the Engineer. The cost for this meeting if held shall be incidental to the project.

D. Driveway impact notification

The Contractor shall notify any resident or business of any access restrictions at least 48 hours prior to access restriction. Notification to residents is considered incidental to the projects activities and included in the unit price of the various activities.

January 14, 2013

Mr. Art Beckwith
Shephard-Wesnitzer, Inc.
75 Kallof Place
Sedona, AZ 86336

RE: Project No. 121451SF
Harmony/Windsong Drainage Channel Design Phase IV
SW/o Thunder Mountain Rd. & Harmony Dr.
Sedona, AZ
Addendum 1 - Report Revisions

Dear Mr. Beckwith:

This addendum addresses the comments provided by the City of Sedona and presents revisions to be incorporated into the original report for the Harmony/Windsong Phase IV drainage improvements.

The following statement is inserted at the end of the first paragraph of section 2.2 on page 4:
'Refusal on sandstone bedrock was encountered at test hole 1 at a depth of 1 foot. Refusal was not encountered at test hole 2. This test hole was terminated at a depth of 1 foot as the main purpose was to obtain soil samples for laboratory testing. Based on the seismic refraction data in the area of TP-2, the depth to refusal is expected to be on the order of 2 to 4 feet but could extend to depths of 6 feet based on the variability observed.'

The following statement is inserted after the first sentence of the second paragraph of section 4.0 on page 14: 'Variations in percentages of similar soil constituents will occur'.

This addendum should be attached to the original Geotechnical Report, Report No. 121451SF, dated December 31, 2012 and made a part thereof. Please give us a call if you have any questions or if we can be of further assistance.

Respectfully submitted,
SPEEDIE & ASSOCIATES



Adam D. Arp-Romero, P.E.

**REPORT ON GEOTECHNICAL
INVESTIGATION**

DESIGNATION: Harmony-Windsong Drainage Channel Phase 4

LOCATION: Lyric Drive to Thunder Mountain Road
Sedona, Arizona

CLIENT: Shephard-Wesnitzer

PROJECT NO: 121451SF

DATE: December 31, 2012



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APPENDIX



1.0 INTRODUCTION

This report presents the results of a subsoil investigation carried out along the route of the proposed drainage improvement project located between Harmony Drive and Windsong Drive for the drainage section from Lyric Drive and Thunder Mountain Road in Sedona, Arizona.

We understand that construction will consist of approximately 1,350 linear feet of drainage channel improvements along with replacement of the existing box culvert crossing at the Moonglow Drive. It is assumed that the crossing will be replaced with buried culvert pipes. At the south side of Thunder Mountain, and at one location on the west side of the drainage just north of Lyric Dr., new drainage inlet structures will be constructed. Minimal grade changes, less than 5 feet, are anticipated to reach finished grades.

Due to limited equipment access the drainage channel, backhoe excavation was not possible. Two surface samples were obtained from the soils at depths of 1 foot below the flow line of the channel. Due to the limited access, 4 Seismic refraction survey lines were conducted in area of the proposed improvements. Structural loads for the headwall and inlet structures are expected to be light to moderate and no special considerations regarding settlement tolerances are known at this time. Landscaped areas will be utilized for storm water retention and disposal.

If any significant changes are made in the scope of work or type of construction that was assumed in this report, we must review such revised conditions to confirm our findings if the conclusions and recommendations presented hereafter are to apply.

2.0 GENERAL SITE AND SOIL CONDITIONS

2.1 Site Conditions

The proposed drainage improvements are located along the existing drainage channel oriented north-south between Thunder Mountain Road and Lyric Drive. It is assumed that the general alignment of the channel will remain the same. The wash encroaches against, and flows between numerous private residential properties. There are also culvert crossings at Moonglow Drive and Thunder Mountain Rd. Access is fairly restrictive along the wash as a result of private and public property and fences. Flowing water was not encountered within the wash at the time of the investigation. The flow line of the channel is on the order of 4 to 10 feet below the bank surface along the balance of the alignment. There is an existing concrete box culvert where the wash travels under Moonglow Drive, and a culvert at Thunder Mountain Road. The Culvert at Lyric Drive was recently replaced during Phase III of this project. The remainder and

majority of the drainage lies in an open cut ditch in native soils. Moderate to thick native desert vegetation was present along the length of the channel.

2.2 General Subsurface Conditions

Subsoil conditions at the site are fairly consistent and generally consist of sandy silt and silty sand with subordinate amounts of gravel. Based on visual and tactile observation, the upper soils were in a dry to moist state at the time of investigation, typically below the plastic limit of the soil. Due to limited accessibility, deep test pits were not excavated. Two samples were obtained from the sides and bottom of the channel utilizing a shovel. Sandstone bedrock was observed at several locations along the channel bottom and banks. At the downstream side of the crossings at Moonglow Dr. and at Thunder Mountain there is evidence of significant erosion at the outfall of the culvert structures. At Thunder Mountain the surficial soils were wet where it appears some water was ponding near the outfall. Based on Seismic Refraction data (attached to the Appendix), the depth to sandstone bedrock varies from .6 to 6.2 feet below the flow line of the channel with the majority being on the order of 2 to 4 feet below the flow line.

No groundwater was encountered during this investigation. However, depending on the time of year, surface and subsurface water perched on the underlying sandstone may be present.

Laboratory testing indicates liquid limits and plasticity indices are non-plastic. Volume increase due to wetting of the upper soils is on the order of 0.08 percent when recompacted to moistures and densities normally expected during construction and confined to 100 psf.

2.3 Seismic Refraction Survey

A seismic refraction survey was completed by Geological Consultants, Inc. on November 20, 2012 to assess site subsurface conditions within the proposed area. The analysis and results are included in the Appendix at the end of this report. It was generally concluded that the geologic profile in the area of the drainage channel improvements consists of thin accumulations of natural overburden soil overlying sandstone and siltstone bedrock of the Supai Formation. Sandstone bedrock and siltstone bedrock were visible at the flowline surface in the area of seismic Refraction Line No. 4. At the majority of the channel, the cut banks consist of predominantly residual and colluvium soils.

3.0 ANALYSIS AND RECOMMENDATIONS

3.1 Analysis

Analysis of the field and laboratory data indicates that subsoils at the site are generally acceptable for structural support for the corrugated metal pipe (cmp) culvert and concrete headwall/inlet structure construction provided some remedial earthwork is performed. Excavation operations should be relatively straightforward, although shallow sandstone bedrock may impede progress and possibly require special rock excavating equipment. In areas where the bedrock is deeper, some shoring may be required to maintain open trenches. For CMP culvert installation, bedding should be selected per the requirements of the pipe materials used and the trench loading conditions. It is recommended that soils be over-excavated down to at least 12 inches below the pipe or where rock is encountered 6 inches to prevent point loading and allow bottom shaping. Where deeper loose soils are encountered at the bottom, remove until firm soils are encountered. The over-excavated zone should then be replaced with compacted granular bedding material. This process will require close inspection during trenching to identify any loose soils and to permit any necessary over-excavation to be performed during the initial excavation process. Subsurface stream flow (perched groundwater) should be considered as a factor in design or construction. Depending upon the time of season and precipitation, surface flows due to runoff may impact construction.

The consolidation potential (and scour) of the deeper soils is a concern with regards to concrete headwall and inlet structure foundations. Based on the limited excavations and observations of the soil conditions, the upper soils are of low density and are susceptible to additional compression due to additional load or saturation. This could cause excessive settlement resulting in cracking problems for concrete headwalls. These soils are also considered erodible and scour could remove the bearing soils. At this time the scour depth is not known. Accordingly, recommendations are made to remove the soils from under the headwall foundations to expose underlying bedrock surface. Due to the limited access, the depth to bedrock near the Moonglow and Thunder Mountain crossings was not determined. However, based on the seismic refraction data it is assumed that the bedrock is relatively shallow. Sandstone/Siltstone bedrock was encountered at depths shallower than 6.5 feet. The presence of variable depths to bedrock must be considered in the design and construction of the foundations. Concrete headwall and inlet structure foundations should bear on one uniform media. Accordingly, where the sandstone bedrock is deeper, it is recommended to remove the soil and backfill with lean concrete grout (500 psi) to the proposed uniform bottom of foundation elevation. In areas where the bedrock is shallower, the foundations may bear directly on the sandstone bedrock.

Backhoe test pit excavation was not possible for this project due to the thick vegetation, and close proximity to private property and residences. This resulted in only 2 shallow test pits which were both excavated by hand in the area of the drainage improvements. However, additional valuable data was

obtained through the seismic refraction survey. Based on the seismic refraction data, shallow sandstone and siltstone bedrock is present throughout the drainage alignment. This bedrock is exposed at the surface at the northern end of the drainage and at several other sporadic locations along the entire drainage. This bedrock may or may not be rippable at the surface. Deeper excavations may require heavier rock excavating equipment. The excavating contractor must make their own assessment as to the type of equipment required to excavate the soils and or bedrock.

3.2 Site Preparation

The entire area to be occupied by the proposed construction should be stripped of all vegetation, debris, rubble and obviously loose surface soils. Final grades should allow for the placement of 4 inches of aggregate base material for under slabs-on-grade for box culvert crossings.

The silty native soils under the culvert should be over-excavated at least 1 foot below proposed the bottom of the pipe, extending at least 3 feet beyond the outer edge of the pipe. A representative of the geotechnical engineer should examine the subgrade once excavation is complete and prior to backfilling to ensure removal of deleterious materials. Where sandstone/siltstone bedrock is encountered this over excavation may be limited to 6 inches in depth.

Subsoils for headwall foundations should be over-excavated as necessary to remove all soil and expose the sandstone bedrock. For slurry placement the over excavated zone should be limited to the plan width of the foundation. Where shallow sandstone/siltstone bedrock is encountered this over excavation is not required, provided the entire structure will bear on bedrock or lean concrete. Where shallow rock is not encountered, the footing excavations should extend to the bedrock surface and be backfilled with structural concrete or lean (500 psi) concrete grout back to the proposed bottom of footing elevation.

Prior to placement of structural fill/bedding below pipe/pavement base course, the exposed grade should be scarified to a depth of 8 inches, moisture conditioned to optimum (± 2 percent) and compacted to at least 95 percent of maximum dry density as determined by ASTM D-698. Scarification of exposed rock is not required.

The silty sand and sandy silt soils may be sensitive to excessive moisture content and will become unstable at elevated moisture content. Accordingly, it may be necessary to compact soils on the dry side of optimum, especially in asphalt pavement areas. The reduced moisture content under slabs-on-grade should only be used upon approval of the engineer in the field.

Prior to placing structural fill for pipe bedding/shading, the existing grade should be scarified to a depth of 8 inches, moisture conditioned to optimum (± 2 percent) and compacted to at least 95 percent of maximum dry density as determined by ASTM D-698. Pavement areas should be treated in a similar manner.

3.3 Foundation Design

For headwalls and inlet structures, it is recommended that these structures **bear on sandstone/siltstone bedrock or grout extended down to rock at a minimum depth of 2 feet below lowest adjacent grade or scour elevation**. If site preparation is carried out as set forth herein, a recommended allowable bearing capacity of **5,000 psf** can be utilized for design. This bearing capacity refers to the total of all loads, dead and live, and is a net pressure. All excavations should be level and cleaned of all loose or disturbed materials prior to concrete or precast placement. The upstream and downstream edges should have turndown cut-off walls that extend below the design scour and/or stream bed degradation elevation.

Estimated settlement of foundations bearing on sandstone/siltstone bedrock is assumed to be nil. Care should be taken in design and construction to ensure that all storm drain water is contained within the system, and that seepage will not occur.

3.4 Lateral Pressures

The following ultimate lateral (equivalent fluid) pressure values may be utilized for the proposed construction assuming drained conditions. Increase to full saturated values for wall backfill that is not drained.

Active Pressures (wall allowed to rotate 0.2% of wall height for loose backfill)	
Unrestrained Walls (Free Draining)	35 pcf
Unrestrained Walls (Saturated Condition)	75 pcf
At-Rest Pressures	
Restrained Walls (Free Draining)	60 pcf
Restrained Walls (Saturated Condition)	85 pcf
Passive Pressures	
Continuous Footings	350 pcf
Coefficient of Friction (w/ passive pressure)	0.35
Coefficient of Friction (w/out passive pressure)	0.45
Coefficient of Friction on Clean Rock	0.75

All backfill must be compacted to not less than 95 percent (ASTM D-698) to mobilize these passive values at low strain. Expansive soils should not be used as retaining wall backfill, except as a surface seal to limit infiltration of storm/irrigation water. The expansive pressures could greatly increase active pressures. To utilize the ‘Coefficient of Friction on Clean Rock’ the surface must be thoroughly cleaned. This may require the use of brushes, water and/or compressed air.

3.5 Fill and Backfill

Native soils are considered suitable for use for general site grading, backfill above the top of pipes, and for wall backfill provided that over-size materials (greater than 3 inches) are removed or crushed. If utilized, it will be critical to the successful performance of the backfill and pavement above that these soils be uniformly moisture-conditioned and properly compacted.

Pipe bedding and shading should meet the project specifications. Or at minimum, the bedding under the pipe should consist of M.A.G. Specification Section 702 for Aggregate Base (AB), compacted and shaped to provide uniform pipe support as recommended by the manufacture.

Unless specified otherwise due to special pipe trench loading conditions, pipe bedding up to spring line (or preferably up to the top of the pipe) should consist of select well graded granular fill (such as MAG Spec AB) placed and compacted in 8 inch lifts. In practice, it may be difficult to achieve proper compaction of the well graded soil beneath the haunches of pipes, therefore, it is recommended to use granular soil such as angular processed stone meeting ASTM C33 #57 or 357, or MAG Specification Section 728 CLSM one to two sack flowable fill.

The trench backfill should be moisture conditioned, placed in suitable lifts and mechanically compacted as specified. Water settling is not recommended. Sandstone bedrock, cobbles and/or rock like cemented materials encountered at depth may result in the need to screen or crush to a size less than 3 inches to obtain compaction.

The value for the Modulus of Soil Reaction Value (E') is dependent on the pipe backfill material utilized, the laying conditions and pipe backfill compaction. Based on the soil test data and field observations, the Modulus of Soil Reaction Value (E') values may be used.

Modulus of Soil Reaction (E')			
Pipe Backfill Material	Compaction (%)	E' (psi)	Comments
Native Fill	90	1,000	1,2
Native Fill	95	2,000	1,2
Granular Fill	90	2,000	1,3
Granular Fill	95	3,000	1,3

Note:

- Standard Proctor maximum dry density (ASTM D-698).
- Must meet fill and backfill specifications. Assumes well mixed 3-inch minus native soils obtained from pipe trench/excavation. Must meet the following Unified Soil classification: (1) fine-grained soils with Liquid limit < 50% and medium to no plasticity (CL, ML, ML-CL) and more than 25% retained on #200 sieve; or (2) coarse-grained soils with fines (GM, GC, SM, SC) containing more than 12% fines.
- Must meet fill and backfill specifications. Assumes 3-inch minus coarse-grained soils with little or no fines (GW, GP, SW, SP) containing less than 12% fines or soils meeting the requirements of M.A.G. section 702 Table 702-1 Type A or Type B select.

If imported common borrow fill for use in site grading is required, it should be examined by a Soils Engineer to ensure that it is of low swell potential and free of organic or otherwise deleterious material. In general, the fill should have 100 percent passing the 3-inch sieve and no more than 60 percent passing the 200 sieve. For the fine fraction (passing the 40 sieve), the liquid limit and plasticity index should not exceed 30 percent and 10 percent, respectively. It should exhibit less than 1.5 percent swell potential when compacted to 95 percent of maximum dry density (ASTM D-698) at a moisture content of 2 percent below optimum, confined under a 100 psf surcharge, and inundated. **Clean Cinders are not acceptable beneath foundations. For fill placed beneath foundations, it should meet the above specifications in addition to containing at least 15 percent passing the 200 sieve.**

Although “clean” cinders often times meet our fill specifications for placement beneath structures, they may pose difficulties during construction. Due to their granular nature and lack of sufficient fines, “clean” cinders are a free draining material. As a result, they may be difficult to properly moisture condition and water may infiltrate the cinders and saturate the underlying soils. This could result in an unstable support for foundations and building slabs. Excess water, as a result of moisture conditioning, is often observed at the interface between the fill and underlying less permeable material. This often results in free water accumulating in foundation excavations prior to the placement of concrete. Free water and loose saturated soils would need to be removed prior to placement of concrete. “Clean” cinders also pose difficulties in trenching operations due to the inability to excavate neat trenches. With the lack of fines and cohesive soils, the clean cinders generally slough and vertical walls are hard to maintain. If a cinder based

product is used for import fill above foundation bottom elevation, consideration should be given to a “dirty” cinder product that meets the fill criteria for placement beneath foundations.

Fill should be placed on subgrade which has been properly prepared and approved by a Soils Engineer. Fill must be wetted and thoroughly mixed to achieve optimum moisture content, ± 2 percent. Fill should be placed in horizontal lifts of 8-inch thickness (or as dictated by compaction equipment) and compacted to the percent of maximum dry density per ASTM D-698 set forth as follows:

A.	Box Culvert and Headwall Areas	
1.	Below headwall footing level	No allowable
2.	Below mat slab foundations	95
3.	Below slabs-on-grade (expansive soils)	90-95 (max)
B.	Pavement Subgrade or Fill	95
C.	Utility Trench Backfill (Pavement Areas)	
1.	More than 2.0' below finish S/G	95
2.	Within 2.0' of finish S/G	100
D.	Aggregate Base Course	100
E.	Landscape Areas	
1.	Miscellaneous fill	90
2.	Utility trench - more than 1.0' below F/G	85
3.	Utility trench - within 1.0' of F/G	90

3.6 Pipe Excavation and Trenching

Trench excavations for storm drain installation may be accomplished by conventional trenching equipment in some limited areas where the sandstone/siltstone bedrock is deeper. Trenching will be very difficult in areas where this bedrock is shallow or exposed at the surface. Shallow sandstone/siltstone bedrock will impede progress and possibly require heavier equipment. Trench walls may stand near-vertical for the short periods of time required to install shallow utilities although some sloughing may occur in looser and/or sandier soils requiring laying back of side slopes and/or temporary shoring. Adequate precautions must be taken to protect workmen in accordance with all current governmental regulations.

All excavations must comply with current governmental regulations including the current OSHA Excavation and Trench Safety Standards. Side slopes for open-cut excavation should be cut back at 1½:1 (horizontal to vertical) in the upper loose soils. Steeper slopes (¾: 1) may be possible in the deeper cemented soils when examined by a responsible party that is capable of evaluating soil classifications for

slope stability and the effects of traffic vibration. The slopes should be protected from erosion due to run-off or long-term surcharge at the slope crest. Construction equipment, building materials, excavated soil and vehicular traffic should not be allowed within 10 feet or one-third the slope height, whichever is greater, from the top of slope. The Soils Engineer and/or the contractor's responsible party should observe all cut slopes during excavation. Adjustments to the recommended slopes may be necessary due to wet zones, loose strata and other conditions not observed in the borings. Localized shoring may also be required. Shotcrete or soil stabilizer on the slope face may be useful in preventing erosion due to run-off and/or drying of the slope. Depending on proximity, existing elements may require shoring, bracing or underpinning to provide structural stability and protect personnel working in the excavation.

For the majority of the channel, it would appear that more aggressive excavation means may be required for cuts deeper than 2 to 4 feet below the existing flowline of the channel. Due to site access, backhoe test pits were not excavated. At several locations along the channel sandstone/siltstone bedrock was exposed at the flowline and some of the banks. Sandstone/Siltstone bedrock will require more aggressive (rock) removal techniques. The report on the seismic refraction survey attached in the appendix should be consulted for more detail on rock excavatability. The excavating contractor should make his or her own assessment as to the excavatability of the soils, sandstone/siltstone bedrock, and the equipment required.

3.7 Corrosion

Laboratory testing of the soils indicate a pH value on the order of 8.3 with laboratory minimum resistivity on the order of 4,080 ohm-cm. Chloride concentrations were on the order of 10 ppm, which is a mildly corrosive level. These results indicate a mild degree of corrosivity to direct buried metal. The minimum laboratory resistivity test is conducted by saturating the soils until a minimum reading is determined. In the field, saturation of the bedding soils should not be expected, except possibly seasonally in wash crossings. Accordingly, under normal soil moisture conditions, the resistivity values would be greater. Suitable pipe wall thickness and corrosion protection should be selected per the trench/traffic load, moisture condition and lifetime requirements of the project. Sulfate concentrations were 0 ppm. This indicates a negligible degree of sulfate attack. Subsurface concrete should use Type I or II cement, which is readily available and used in the area.

3.8 Pavement Design

It is assumed part of and as a result of the proposed construction that some pavement will be removed. If this occurs in small isolated locations the pavement should be replaced to match the existing pavement sections. The following pavement sections are provided in the event that new pavement is constructed as part of this project.

If earthwork in paved areas is carried out to finish subgrade elevation as set forth herein, the subgrade will provide adequate support for pavements. The section capacity is reported as daily ESALs, Equivalent 18 kip Single Axle Loads. Typical heavy trucks or busses impart 1.0 to 2.5 ESALs per truck depending on load. It takes approximately 1200 passenger cars to impart 1 ESAL. The designer/owner should choose the appropriate sections to meet the anticipated traffic volume, life expectancy, and any City of Sedona requirements.

Table 3.8.1 – Asphalt Pavement

Options	18 kip ESALs		Flexible Pavement	
	Daily	Total	AC (0.39/0.42)	AB (0.12)
A	17.0	125,500	2.5"	4.0"
B	40.0	295,500	2.5"	6.0"
C	35.0	253,500	3.0"	4.0"
D	77.0	558,700	3.0"	6.0"

Notes: Designs are based on AASHTO design equations and Arizona Department of Transportation (ADOT) correlated R-values.

Pavement Design Parameters:

Assume:	One 18 kip Equivalent Single Axle Load (ESAL)/Truck
Life:	20 years
Subgrade Soil Profile:	
% Passing No. 200 Sieve:	35% (avg)
Plasticity Index:	0 (avg)
R-value:	65 (per ADOT Tables)
M _R :	26,000 (per AASHTO formula)
Serviceability:	
Initial	4.5
Final	2.5
Reliability:	90%
Structural Coefficients:	
Asphalt:	
< 4.0"	0.39
≥ 4.0"	0.42
Aggregate Base:	0.12

This assumes that all subgrades are prepared in accordance with the recommendations contained in the “Site Preparation” and “Fill and Backfill” sections of this report, and paving operations carried out in a proper manner. If pavement subgrade preparation is not carried out immediately prior to paving, the entire area should be proof-rolled at that time with a heavy pneumatic-tired roller to identify locally unstable areas for repair. Site drainage should be designed to ensure positive drainage of the base and sub base materials. Improper grading of sub base materials will drastically reduce the overall life of the pavement.

Pavement base course material should be aggregate base per M.A.G. Section 702 Specifications. Asphalt concrete materials and mix design should conform to M.A.G. 710 (and any City of Sedona / Yavapai County modifications) using the Marshall mix design criteria for low volume traffic and PG 70-10 for the asphalt grade. Reducing the air void content to 3 percent will aid in reducing thermal cracking typical in the area. It is recommended that a 12.5mm or 19.0mm mix designation be used for the pavements. While a 19.0mm mix may have a somewhat rougher texture, it offers more stability and resistance to scuffing, particularly in truck turning areas. Pavement installation should be carried out under applicable portions of M.A.G. Section 321 and municipality standards. The asphalt supplier should be informed of the pavement use and required to provide a mix that will provide stability and be aesthetically acceptable. Some of the newer M.A.G. mixes are very coarse and could cause placing and finish problems. A mix design should be submitted for review to determine if it will be acceptable for the intended use.

3.9 Permanent Cut/Fill Slope Limitations

Care should be taken during excavation not to endanger nearby existing structures, roadways, utilities, etc. Depending on proximity, existing structures (including utilities) may require shoring, bracing or underpinning to provide structural stability and protect personnel working in the excavation.

Generally, permanent cut or fill slopes should be no steeper than 2 horizontal to 1 vertical (2:1). Where particular conditions make it appropriate to vary from these slopes, these must be addressed on a case by case basis, either in this report or at special request directed to a representative of this office. Steeper cut slopes in stable rock may be possible (depending of geology), not very likely in soils. Determination of acceptable steeper slope ratios is predicated on a stability analysis of the specific geometry, determinations of soil and groundwater characteristics, structure set backs, surcharge loads and slope stabilization.

In accordance with Building Code requirements, all occupied structures should be set back from the crest (top edge) of the slope such that the outer edge of the nearest foundation is no closer than a distance equal to at least one third ($\frac{1}{3}$) of the total height of the slope. See specific building code requirements for additional detail and/or placement of structures at the bottom (toe) of slopes.

Where fills are made on hillsides or slopes, the slope of the original ground upon which the fill is to be placed shall be plowed or scarified deeply or where the slope ratio of the original ground is steeper than 5 horizontal to 1 vertical (5:1), the bank shall be stepped or benched to remove all loose soils and to provide a level surface for placement of fill. Ground slopes which are flatter than 5 to 1 may require benching when considered necessary by a representative of this office. The benches should be cut wide enough to remove loose surface soils and allow proper compaction of fills. A minimum bench width of 8 feet is typically recommended for the first lift (toe) of any fill placed on a slope. This width may be reduced at the direction of the field engineer depending on the presence of loose soils, slope steepness, exposed rock and lift thickness. A keyway shall also be constructed at the toe of the slope. The key width shall be $\frac{1}{2}$ times the height of the slope or at least $1\frac{1}{2}$ times the width of the compaction equipment. The key bottom shall be sloped 2% toward the slope. The key shall be excavated into dense soil or rock formation to a minimum depth of 18 inches unless approved otherwise by the engineer.

Placement and obtaining compaction of fill adjacent to fill slopes may be very difficult. Depending on soil type and final slope configuration, it may be necessary to over-build the slope and cut back to the final configuration to obtain the required degree of compaction.

4.0 GENERAL

The scope of this investigation and report does not include regional considerations such as seismic activity and ground fissures resulting from subsidence due to groundwater withdrawal, nor any considerations of hazardous releases or toxic contamination of any type.

Our analysis of data and the recommendations presented herein are based on the assumption that soil conditions do not vary significantly from those found at specific sample locations. Our work has been performed in accordance with generally accepted engineering principles and practice; this warranty is in lieu of all other warranties expressed or implied.

We recommend that a representative of the Soils Engineer observe and test the earthwork and foundation portions of this project to ensure compliance to project specifications and the field applicability of subsurface conditions which are the basis of the recommendations presented in this report. If any significant changes are made in the scope of work or type of construction that was assumed in this report, we must review such revised conditions to confirm our findings if the conclusions and recommendations presented herein are to apply.

Respectfully submitted,
SPEEDIE & ASSOCIATES, INC.



Alexis M. Griffiths, R.G.



Adam Arp-Romero, P.E.



Gregg A. Creaser, P.E.



APPENDIX

FIELD AND LABORATORY INVESTIGATION

SOIL TEST PIT AND SEISMIC REFRACTION LINE LOCATION PLAN

SOIL LEGEND

LOG OF TEST PITS

TABULATION OF TEST DATA

CORROSIVE TEST DATA

MOISTURE-DENSITY RELATIONS

SWELL TEST DATA

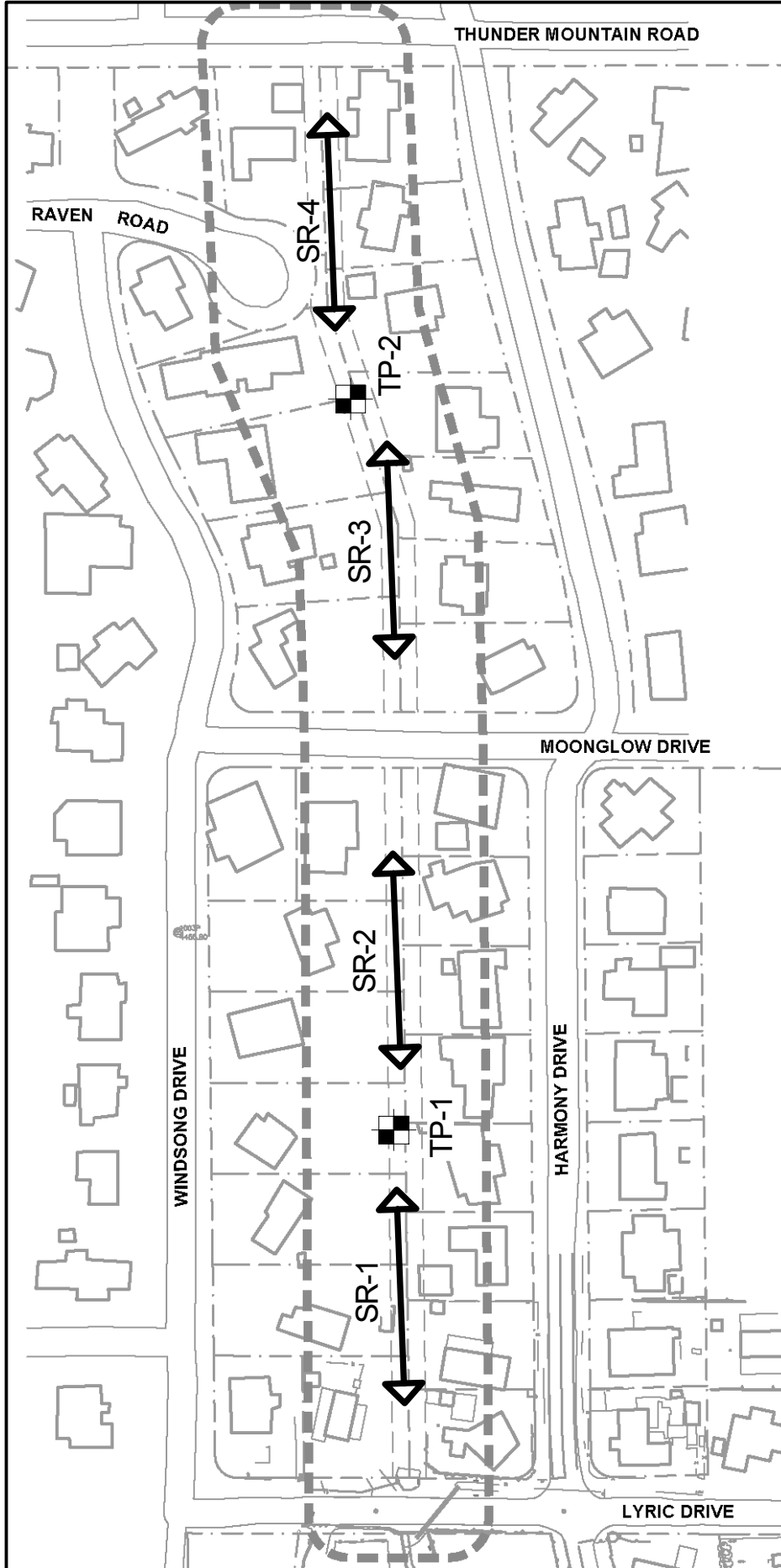
**SEISMIC REFRACTION SURVEY
(GEOLOGICAL CONSULTANTS, INC)**

FIELD AND LABORATORY INVESTIGATION

On November 20, 2012, 2 shallow sample pits were excavated at the approximate locations shown on the attached Test Pit Location Plan. All exploration work was carried out under the full-time supervision of our staff geologist, who recorded subsurface conditions and obtained samples for laboratory testing. The shallow pits were excavated by hand using a shovel. Detailed information regarding the test pits and samples obtained can be found on an individual Log of Test Pit prepared for each location.

Additionally, on November 20, 2012, 4 seismic refraction surveys were conducted along the drainage alignment. Refer to the Seismic Refraction Survey for details.

Laboratory testing consisted of moisture content, dry density, grain-size distribution and plasticity (Atterberg Limits) tests for classification and pavement design parameters. Resistivity, pH, sulfate content, and chloride content were tested to determine the corrosivity of the native soils on underground steel and concrete. Remolded swell tests were performed on samples compacted to densities and moisture contents expected during construction. All field and laboratory data are presented in this appendix.



— APPROXIMATE LOCATION AND DIRECTION OF SEISMIC REFRACTION LINES

■ — APPROXIMATE TEST PIT LOCATIONS

Drawing Courtesy of: Shephard—Wesnitzer, Inc.

Harmony/Mindsong Drainage Ph. IV
 Lyric Dr. to Thunder Mountain Rd.
 Sedona, Arizona

SPEEDIE AND ASSOCIATES
 GEOTECHNICAL/ENVIRONMENTAL/MATERIALS ENGINEERS
 403 E. HUNTINGTON, SUITE 140
 FLAGSTAFF, ARIZONA 86004

TEST PIT and SRL LOCATION PLAN

DR:AAR CHK:CWS REV: DATE: 12-24-12 PROJECT NO. 121451SF

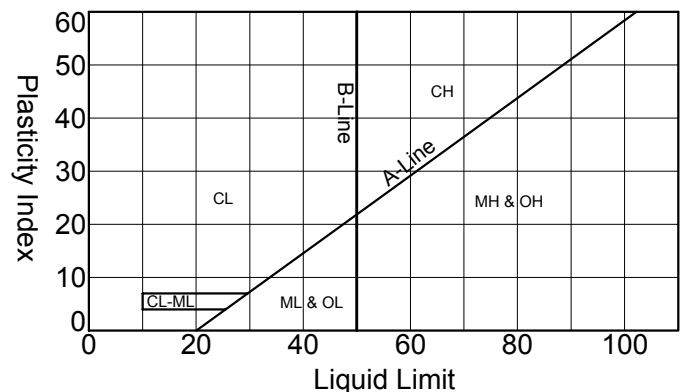
SOIL LEGEND

SAMPLE DESIGNATION	DESCRIPTION	
AS	Auger Sample	A grab sample taken directly from auger flights.
BS	Large Bulk Sample	A grab sample taken from auger spoils or from bucket of backhoe.
S	Spoon Sample	Standard Penetration Test (ASTM D-1586) Driving a 2.0 inch outside diameter split spoon sampler into undisturbed soil for three successive 6-inch increments by means of a 140 lb. weight free falling through a distance of 30 inches. The cumulative number of blows for the final 12 inches of penetration is the Standard Penetration Resistance.
RS	Ring Sample	Driving a 3.0 inch outside diameter spoon equipped with a series of 2.42-inch inside diameter, 1-inch long brass rings, into undisturbed soil for one 12-inch increment by the same means of the Spoon Sample. The blows required for the 12 inches of penetration are recorded.
LS	Liner Sample	Standard Penetration Test driving a 2.0-inch outside diameter split spoon equipped with two 3-inch long, 3/8-inch inside diameter brass liners, separated by a 1-inch long spacer, into undisturbed soil by the same means of the Spoon Sample.
ST	Shelby Tube	A 3.0-inch outside diameter thin-walled tube continuously pushed into the undisturbed soil by a rapid motion, without impact or twisting (ASTM D-1587).
--	Continuous Penetration Resistance	Driving a 2.0-inch outside diameter "Bullnose Penetrometer" continuously into undisturbed soil by the same means of the spoon sample. The blows for each successive 12-inch increment are recorded.


CONSISTENCY			RELATIVE DENSITY	
Clays & Silts	Blows/Foot	Strength (tons/sq ft)	Sands & Gravels	Blows/Foot
Very Soft	0 - 2	0 - 0.25	Very Loose	0 - 4
Soft	2 - 4	0.25 - 0.5	Loose	5 - 10
Firm	5 - 8	0.5 - 1.0	Medium Dense	11 - 30
Stiff	9 - 15	1 - 2	Dense	31 - 50
Very Stiff	16 - 30	2 - 4	Very Dense	> 50
Hard	> 30	> 4		

MAJOR DIVISIONS		SYMBOLS		TYPICAL DESCRIPTIONS
		GRAPH	LETTER	
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS <small>(LITTLE OR NO FINES)</small>		GW	WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
			GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
			GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
	GRAVELS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
			SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
			SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
SAND AND SANDY SOILS <small>(LITTLE OR NO FINES)</small>		SM	SILTY SANDS, SAND - SILT MIXTURES	
		SC	CLAYEY SANDS, SAND - CLAY MIXTURES	
FINE GRAINED SOILS <small>(MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE)</small>	SILTS AND CLAYS <small>LIQUID LIMIT LESS THAN 50</small>		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
			CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS <small>LIQUID LIMIT GREATER THAN 50</small>		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
			CH	INORGANIC CLAYS OF HIGH PLASTICITY
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

MATERIAL SIZE	PARTICLE SIZE				
	Lower Limit		Upper Limit		
	mm	Sieve Size ♦	mm	Sieve Size ♦	
SANDS	Fine	0.075	#200	0.42	#40
	Medium	0.420	#40	2.00	#10
	Coarse	2.000	#10	4.75	#4
GRAVELS	Fine	4.75	#4	19	0.75" x
	Coarse	19	0.75" x	75	3" x
COBBLES	75	3" x	300	12" x	
BOULDERS	300	12" x	900	36" x	
♦U.S. Standard		*Clear Square Openings			



NOTE: DUAL OR MODIFIED SYMBOLS MAY BE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS OR TO PROVIDE A BETTER GRAPHICAL PRESENTATION OF THE SOIL

Depth (feet)	Graphic Log	Equipment Type: Hand Excavation	Sample Number	Depth of Sample	Natural Water Content (%)	In-place Dry Density (P.C.F.)	Penetration Resistance Blows per Foot
		Surface Elevation: N/A					
0		Visual Classification					0 25 50
		Medium Dense Orangish Brown <u>SILTY SAND</u> (SM-Dry to Moist) with Gravel					
		1.0	BS-1	1.0	NT	NT	
		Test Pit Refusal on Sandstone					
5							
10							
15							

Excavation Date: 11-20-12
 Field Engineer/Technician: A. Arp Romero
 Excavator: A. Arp Romero
 Contractor: Speedie & Assoc.

Water Level		
Depth	Hour	Date
<i>Free Water was Not Encountered</i>		

NT = Not Tested

SPEEDIE AND ASSOCIATES

Log of Test Pit Number: TP-1

Harmony/Windsong Drainage Channel Ph. IV

Lyric Dr to Thunder Mountain Road

Sedona, Arizona

Project No.: 121451SF

TEST PIT 121451SF.GPJ GENGEO.GDT 12/26/12

Depth (feet)	Graphic Log	Equipment Type: Hand Excavation	Sample Number	Depth of Sample	Natural Water Content (%)	In-place Dry Density (P.C.F.)	Penetration Resistance Blows per Foot
		Surface Elevation: N/A					
0		Visual Classification					0 25 50
		Firm Orangish Brown <u>SANDY SILT</u> (ML-Dry to Moist) with Little Clay and Gravel					
		1.0	BS-1	1.0	NT	NT	
		End of Test Pit					
5							
10							
15							

Excavation Date: 11-20-12
 Field Engineer/Technician: A. Arp Romero
 Excavator: A. Arp Romero
 Contractor: Speedie & Assoc.

Water Level		
Depth	Hour	Date
<i>Free Water was Not Encountered</i>		

NT = Not Tested

SPEEDIE AND ASSOCIATES

Log of Test Pit Number: TP-2

Harmony/Windsong Drainage Channel Ph. IV

Lyric Dr to Thunder Mountain Road

Sedona, Arizona

Project No.: 121451SF

TEST PIT 121451SF.GPJ GENGEO.GDT 12/26/12

TABULATION OF TEST DATA

SOIL BORING or TEST PIT NUMBER	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE INTERVAL (ft)	NATURAL WATER CONTENT (Percent of Dry Weight)	IN-PLACE DRY DENSITY (Pounds Per Cubic Foot)	PARTICLE SIZE DISTRIBUTION (Percent Finer)					ATTERBERG LIMITS			UNIFIED SOIL CLASSIFICATION	SPECIMEN DESCRIPTION
						#200 SIEVE	#40 SIEVE	#10 SIEVE	#4 SIEVE	3" SIEVE	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX		
TP-1	BS-1	BULK	0.0 - 1.0	NT	NT	12.1	28	43	61	100	NP	NP	NP	SM	SILTY SAND with GRAVEL
TP-2	BS-1	BULK	0.0 - 1.0	NT	NT	57.7	91	94	96	100	NP	NP	ML	SANDY SILT	

Sieve analysis results do not include material greater than 3". Refer to the actual boring logs for the possibility of cobble and boulder sized materials.

NT=Not Tested
Sheet 1 of 1

Harmony/Windsong Drainage Channel Ph. V
Lyric Dr to Thunder Mountain Road
Sedona, Arizona
Project No. 121451SF



CORROSIVE TEST DATA

SOIL BORING or TEST PIT NUMBER	TP-1	SAMPLE NUMBER	BS-1	SAMPLE TYPE	BULK	SAMPLE INTERVAL (ft)	0.0 - 1.0	PERCENT FINER #200 SIEVE	12.1	pH	8.34	RESISTIVITY (Ohm-Centimeters)	4083	SULFATE (SO4) (ppm)	0	CHLORIDE (CL) (ppm)	10	SULFIDE (+ or -)	NT	REDOX (millivolts)	NT	UNIFIED SOIL CLASSIFICATION	SM	SPECIMEN DESCRIPTION	SILTY SAND with GRAVEL
-----------------------------------	------	---------------	------	-------------	------	----------------------	-----------	-----------------------------	------	----	------	----------------------------------	------	---------------------	---	---------------------	----	------------------	----	--------------------	----	--------------------------------	----	-------------------------	------------------------

Harmony/Windsong Drainage Channel Ph. V
 Lyric Dr to Thunder Mountain Road
 Sedona, Arizona
 Project No. 121451SF

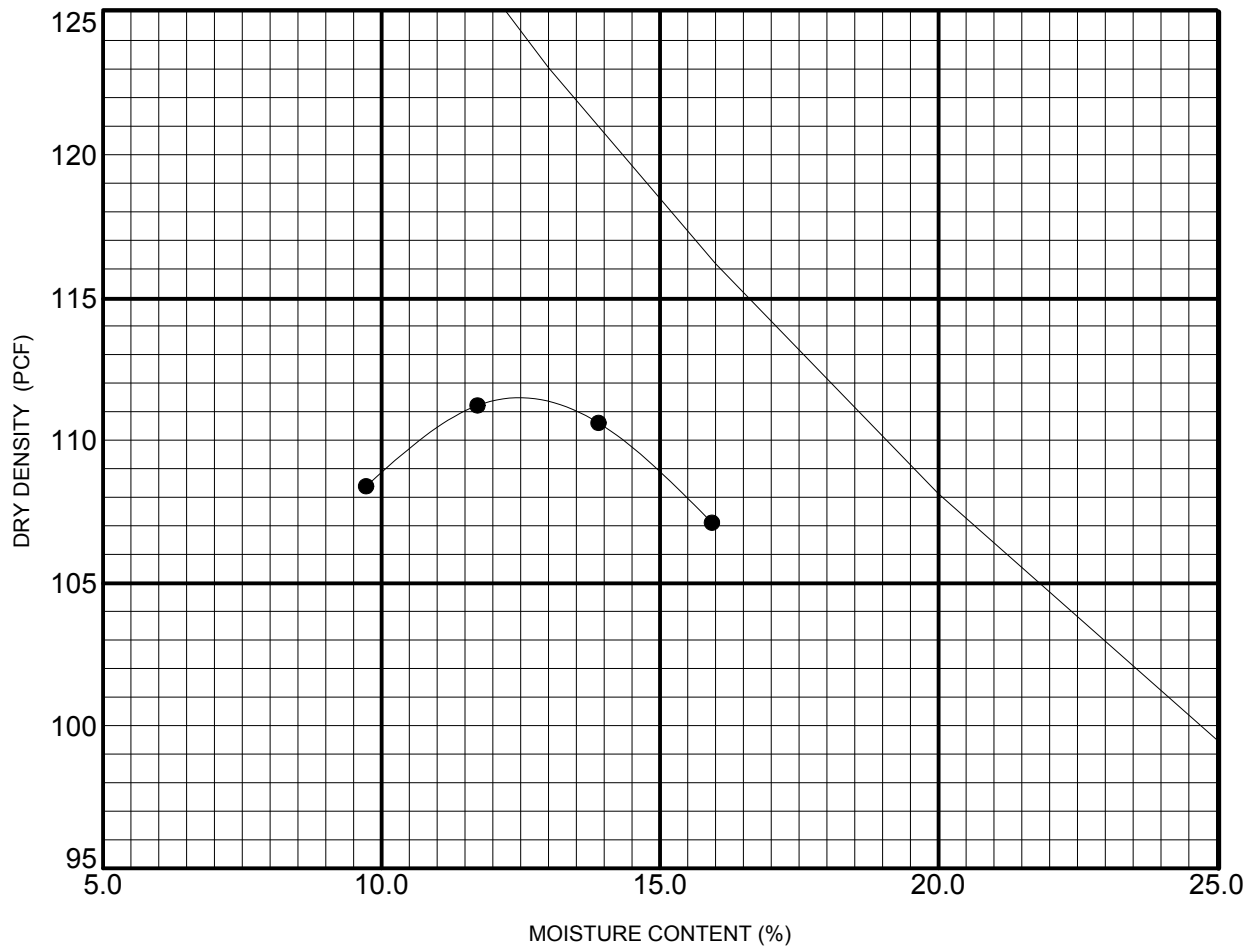


MOISTURE-DENSITY RELATIONS

PROJECT: Harmony/Windsong Drainage Channel Ph. IV PROJECT NO.: 121451SF
LOCATION: Lyric Dr to Thunder Mountain Road DATE: 11/20/12
BORING NO.: TP-2 SAMPLE NO.: BS-1 SAMPLE DEPTH: 0 to 1 LABORATORY NO.: KR412
METHOD OF COMPACTION: D698A
LIQUID LIMIT: NP PLASTIC LIMIT: NP PLASTICITY INDEX: NP
CLASSIFICATION: ML ASTM SOIL DESCRIPTION: SANDY SILT

MAXIMUM DRY DENSITY: 111.6 PCF

OPTIMUM MOISTURE CONTENT: 12.6%



SWELL TEST DATA

BORING or TEST PIT No.	SAMPLE DEPTH, ft	MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE CONTENT (%)	REMOVED DRY DENSITY (pcf)	INITIAL MOISTURE CONTENT (%)	PERCENT COMPACTION	FINAL MOISTURE CONTENT (%)	CONFINING LOAD (psf)	TOTAL SWELL (%)
TP-2, BS-1	1.0	111.6	12.6	106.3	11.0	95.2	19.3	100	0.1

Harmony/Windsong Drainage Channel Ph. V
 Lyric Dr to Thunder Mountain Road
 Sedona, Arizona
 Project No. 121451SF



Report Prepared for:

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Report Prepared by:

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Phoenix, Arizona 85021

December 20, 2012



Prepared by:
Kenneth M. Euge, R.G.

SEISMIC REFRACTION SURVEY
HARMONY-WINDSONG PHASE IV
DRAINAGE CHANNEL PROJECT
THUNDER MOUNTAIN ROAD TO
LYRIC DRIVE SEGMENT, SEDONA, ARIZONA

GCI Project No. 2012-146

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APPENDIX A - SEISMIC REFRACTION SURVEY

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SEISMIC REFRACTION SURVEY

HARMONY-WINDSONG IV
DRAINAGE CHANNEL PROJECT
THUNDER MOUNTAIN ROAD TO LYRIC DRIVE SEGMENT
SEDONA, ARIZONA

1.0 INTRODUCTION

This report presents results of a seismic refraction survey geophysical field investigation and analysis to assess subsurface conditions along the proposed Harmony-Windsong IV Drainage Channel Project segment. The drainage channel alignment for this segment trends in a north to south direction between Thunder Mountain Road and Lyric Drive and parallel to Harmony Drive and Windsong Drive in Sedona, Arizona. (Figure 1). Specifically, the project area where the seismic refraction survey was completed is in the Northwest $\frac{1}{4}$ of Section 11, Township 17 North, Range 5 East. Seismic refraction survey lines were located within the existing drainage channel in close proximity to residential property building structures that parallel the east and west sides of the channel. This drainage channel will be improved using designs based in part on the results of this investigation.

A portion of the existing drainage channel includes a buried culvert section beneath the roadway crossing at Moonglow Drive west of Harmony Drive (Figure 2). Portions of the existing channel have been downcut and eroded exposing hard sedimentary bedrock along the gentle to moderately steep flow gradient of the channel alignment toward the south through the residential area. Portions of the existing drainage channel eroded cut bank slopes exposing sand-gravel colluvium and alluvium overburden soils are overstepped to near vertical. The back slopes have experienced localized slumping (bank failure) due to lateral erosion. South of Thunder Mountain Road, along seismic survey line S04, attempts have been made to control channel and bank erosion using wire mesh and, what appears to be, hand-place concrete (Figure 11b).

Photographs of each of the seismic refraction survey sites are provided in Figures 4, 6, 8, and 10. Additional photographs depicting typical geological and soil conditions along the drainage channel alignment are provided in Figure 11. Table 1 summarizes the locations where the seismic surveys were completed along with a general description of the interpreted subsurface geology or soil conditions deduced from the seismic survey interpretations.

Based on the observations made in the vicinity of each of the seismic survey line locations, our understanding of the geologic conditions in this portion of the Sedona area, and our interpretation of the seismic refraction survey results, the proposed Harmony-Windsong Drainage Channel Project alignment is underlain in part by flat-lying, thick to thin bedded and relatively hard sedimentary bedrock of the Supai Formation consisting of cemented silty sandstone and sandy siltstone. The sandstone and siltstone beds are locally broken by high angle secondary joints and fractures. Some thin clayey shale beds may be encountered locally. The sandstone and siltstone bedrock, although moderately to slightly weathered in exposed outcrops, is overlain by alluvium and colluvium. Human-placed earth fills of unknown quality may be found locally along the existing channel alignment. Along the existing drainage channel alignment in the vicinity of the seismic survey lines, sandstone and siltstone bedrock is exposed in channel bottom and channel cut bank (Figure 11). The existing channel between Thunder Mountain Road and Lyric Drive is locally armored by hard sedimentary bedrock and gravelly to bouldery stream channel deposits derived from the erosion of the Supai formation bedrock.

Table 1
Seismic Survey Summary
Location & General Geology/Soil Conditions
Harmony-Windsong Phase IV Drainage Channel Project

Seismic Survey Site	Seismic Survey Line	General Geology/Soil Conditions
North of Lyric Drive	HW3-S01	Stream channel deposits overlying Supai Formation (Fm) and Supai Fm exposed in channel bottom; dense overburden soil and localized fill in channel banks
South of Moonglow Drive	HW3-S02	Loose gravelly sand with cobbles & boulders in stream channel; dense overburden soil and localized fill in channel banks over bedrock. No exposed bedrock. Localized bank soil slumps
North of Moonglow Drive	HW3-S03	Loose gravelly sand with cobbles & boulders in stream channel; dense overburden soil and localized fill in channel banks over bedrock. No exposed bedrock. Localized bank soil slumps
South of Thunder Mountain Road	HW3-S04	Stream channel deposits overlying Supai Formation and Supai Fm exposed in channel bottom; dense overburden soil and localized fill & bedrock in channel banks

Seismic survey data analysis and interpretations reveal a reasonably consistent velocity profile interpreted to represent a near-surface zone of very moist to damp natural overburden soil or rocky earth fills, ranging in thicknesses from about 0.6 feet to about 5.2 feet, with velocities ranging from about 1,503 feet per second (ft/s) to about 1,692 ft/s. Sandstone, siltstone, and occasional basalt gravel and cobbles range in size up to about nine inches in diameter, and small boulders. Natural overburden soils are predominantly fine to medium-grained silty sand and sandy silt containing 15 to 20 percent of gravel to boulder-size sandstone, siltstone, and a small percentage of basalt rock fragments. The interpreted intermediate velocity layer suggests the presence of very strongly to moderately weathered, and broken, bedrock layers with seismic velocities ranging from about 2,791 ft/s to about 4,812 ft/s with a calculated thickness ranging from about six feet to twenty-one feet. The natural soil overburden, rocky earth fills, and strongly weathered bedrock overlies the moderately hard and moderately to very slightly weathered sandstone and siltstone bedrock with calculated seismic velocities ranging from about 5,537 ft/s to about 12,056 ft/s at depths of about 4 feet to 27 feet below the ground surface. Because the near-surface bedrock is broken by joint discontinuities that have been weathered, it may be possible to rip some localized areas of the bedrock but large rock fragments could be generated that may necessitate some secondary fragmentation.

Seismic survey data are used to develop reasonable interpretations of subsurface conditions of the site. The objectives of the seismic refraction geophysical surveys are to provide, by indirect means, a higher level of confidence to:

- Indirectly characterize earth fill, natural soil, bedrock, or bedrock-like materials that may be present along the proposed drainage channel alignment.
- Evaluate the thicknesses of existing soil overburden that may be present, and depth to bedrock or rocklike materials.

The requirements for this study were defined in discussions with Mr. Adam Arp-Romero, P.E., Project Engineer with Speedie & Associates, Flagstaff Office. The seismic survey field crew mobilized to the Harmony-Windsong IV Drainage Channel Project survey sites on November 20, 2012. The seismic refraction survey field work was completed on March 1, 2011. Mr. Kenneth M. Euge, Sr., R.G. of Geological Consultants Inc. (GCI) and Ms. Alexis Griffiths (Speedie & Associates), conducted the seismic refraction surveys.

The Scope of Work performed to accomplish the objectives of this study included:

- ▶ Mobilization and demobilization of GCI personnel (a geophysicist/ geologist crew) and equipment to and from each refraction survey site.
- ▶ Completion of four shallow seismic refraction surveys and the preliminary analyses of survey results. Figure 2 depicts the locations of the seismic refraction survey lines.
- ▶ A cursory geological reconnaissance was completed in the vicinity of the four seismic survey line locations to examine and generally characterize or describe exposed geologic and soil materials.
- ▶ A rough position survey using a hand-held GPS device to determine the approximate geodetic location of the seismic survey lines.
- ▶ Computer analysis of field data and interpretation of results was performed to complete the assessment of the materials present and their relative quality.
- ▶ Preparation of this report to document the seismic refraction surveys, their findings and interpretations, and provide conclusions and recommendations relative to the findings made.

The seismic survey was designed to envelop the anticipated excavation depths for the proposed drainage channel modifications. The effective penetration of the seismic survey is estimated to be at least 30 feet (or more) below the ground surface. Velocity, thickness, and depth computations of different horizons, or zones, are provided to generally characterize site materials within the depth of interest expected at the selected seismic refraction survey sites. No direct subsurface explorations, such as test pits, were made by GCI as part of this seismic refraction survey.

2.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the cursory site reconnaissance, seismic surveys, and the data interpretations, the following conclusions and recommendations are provided:

2.1 Site Geology

The project site is located along the dissected sedimentary bedrock terrain found along the southern margin of the Colorado Plateau Physiographic Province south of the Mogollon Rim. The geology along the proposed drainage channel alignment is dominated by an assemblage of sedimentary bedrock units, termed the Supai Formation that is locally covered by residual soil, colluvium (slope wash debris) or human-placed earth fills.

The Supai formation is flat-lying to slightly dipping toward the north. The bedrock units included in this formation are composed of pale reddish brown to dark reddish brown alternating beds of cemented, massive silty sandstone, sandy siltstone, conglomeritic sandstone, shaley siltstone, and mudstone. Beds of clayey shale may be locally interbedded with the detrital beds. Individual beds are commonly one to five feet thick. Shaley sections can exhibit lamination less than six inches thick while the more massive sandstone beds can be more than 15 feet thick.

Structurally, the bedrock layered with primary bedding planes that separate the individual beds. This rock is also cut, or broken, by steep dipping joint/fracture discontinuities that are oriented toward the northwest and northeast. Locally, the joints may be filled with calcite or stained with iron oxide. In surface rock outcrops, the joints and fractures can exhibit open separation or tension cracks (Figure 11).

Where encountered, the cemented massive sandstone and siltstone bedrock is very hard and it will be difficult to excavate with conventional earth moving equipment. Special equipment such as a rock trencher or a large hydraulic impact breaker may be required to fragment the bedrock. Controlled blasting using a blasting plan that considers the bedded and fractured character of the sedimentary bedrock could also be used to fragment the bedrock; however, if blasting is proposed, caution must be exercised because of the close

proximity of occupied residential structures adjacent to the proposed drainage channel alignment.

The unconsolidated to slightly consolidated overburden soil and fill soils should be relatively easy to excavate using conventional earth moving equipment. However, where rocky fills or strongly weathered and broken sedimentary bedrock is encountered, boulder-size sandstone and siltstone rock fragments could be difficult to handle and some could require secondary fragmentation.

2.2 Seismic Refraction Surveys

2.2.1 Seismic Survey Line HW3-S01

Survey Line HW3-S01 was oriented toward the north along the bottom of the existing drainage channel segment located a few feet north of Lyric Drive (Figures 2 and 4). Relatively easy access to the seismic survey site for personnel and equipment was provided via Lyric Drive and then on-foot a short distance to the seismic line survey site.

Based on the observation made at the seismic survey line site and our interpretation of the seismic refraction survey results, this portion of the proposed drainage channel alignment is mantled by a very moist to damp, relatively thin layer of unconsolidated to poorly consolidated, sandy and locally gravelly silty sand channel soil that overlies the sedimentary bedrock of the Supai formation. Supai formation sedimentary bedrock is also exposed along portions of the existing channel. Oversteepened channel bank cuts expose colluvial and alluvial silty sand and gravel that has locally experienced shallow soil slumps.

The seismic velocities calculated from the data gathered at seismic survey line HW3-S01 revealed a reasonably consistent profile (Figure 3) where the very shallow, near-surface horizon includes the moist to damp, gravelly channel deposits (1,501 feet per second (ft/s)) that overlies an intermediate layer interpreted to consist of moderately weathered and locally jointed Supai formation sandstone and siltstone bedrock with an average seismic velocity of about 5,839 ft/s. At depths of about 16.7 feet to 20.3 feet below existing grades, a very slightly weathered, high velocity layer (12,056 ft/s) was encountered. The high velocity suggests the presence of a very massive, intact rock

extending to depths of more than 20 feet below the ground surface. This velocity layer is interpreted to be sandstone and siltstone of the Supai formation (Figures 4 and 11) that is expected to be broken by joint/fracture discontinuities.

2.2.2 Seismic Survey Line HW3-S02

Survey Line HW3-S02 was oriented toward the north along the bottom of the existing drainage channel. The northeast end of the seismic survey line was located a few feet south of Moonglow Drive (Figure 2). Access for personnel and equipment to the survey line site was provided by on-foot travel south from Moonglow Drive.

The surficial geologic and soil conditions along seismic survey line HW-S02 (Figure 6) are similar to the conditions along survey line HW-S01 except that no Supai formation bedrock is exposed. The upper layer includes very moist to damp channel soils composed of loose to dense silty sand, gravel, cobble and small boulders with a calculated seismic velocity of about 1,696 ft/s. This zone was interpreted to extend to depths ranging from the surface to about 4.4 feet to about 5.1 feet below the existing ground surface (Figure 5). A high velocity zone (8,180 ft/s) is interpreted to be moderately to slightly weathered Supai Formation bedrock which extends to calculated depths of about 8.8 feet to more than five feet below the ground surface.

2.2.3 Seismic Survey Line HW3-S03

Survey Line HW3-S03 was oriented toward the north along the bottom of the existing drainage channel. The south end of the seismic survey line was located about 150 feet north of the Moonglow Drive (Figure 2). Access for personnel and equipment to the survey line site was provided by on-foot travel downstream along the drainage channel north from Moonglow Drive.

The surficial geologic and soil conditions along seismic survey line HW-S03 (Figure 8) are similar to the condition along survey line HW-S02. The upper layer includes very moist to damp channel soils composed of loose to dense silty sand, gravel, cobble and small boulders, and possibly very shallow, extremely weathered and broken sedimentary bedrock with a calculated seismic velocity of about 2,791 ft/s. This zone was interpreted to extend to depths ranging from the surface to about 2.1 feet to about 6.2 feet below the

existing ground surface (Figure 7). The stream channel deposits overlie an intermediate layer interpreted to consist of moderately weathered and locally jointed Supai formation sandstone and siltstone bedrock with an average seismic velocity of about 5,537 ft/s. At depths of about 7.2 feet to 14.8 feet below existing grades, a very slightly weathered, high velocity layer (12,049 ft/s) was encountered. The high velocity suggests the presence of a very massive, intact rock extending to depths of more than 14 feet below the ground surface. This velocity layer is interpreted to be sandstone and siltstone of the Supai formation (Figures 11) that is expected to be broken by joint/fracture discontinuities.

2.2.4 Seismic Survey Line HW3-S04

Survey Line HW3-S04 was oriented toward the south along the bottom of the existing drainage channel segment located about one-hundred feet south of Thunder Mountain Road (Figures 2). Relatively easy access to the seismic survey site for personnel and equipment was provided via Thunder Mountain Road and then on-foot a short distance to the seismic line survey site.

Based on the observation made at the seismic survey line site (Figure 10) and our interpretation of the seismic refraction survey results, this portion of the proposed drainage channel alignment is mantled by very moist to damp, relatively thin layers of unconsolidated to poorly consolidated, sandy and locally gravelly silty sand channel soils that overlies sedimentary bedrock of the Supai formation. The Supai formation bedrock is exposed along portions of the existing channel. Oversteepened channel bank cuts expose colluvial and alluvial silty sand and gravel that has locally experienced shallow soil slumps. Along portions of the existing channel, the bottom and banks of the channel are partially draped with wire mesh and old concrete lining apparently installed for erosion protection. Several areas of the wire mesh are separated and one area of the concrete lining has been undercut by erosion of the underlying soil.

The seismic velocities calculated from the data gathered at seismic survey line HW3-S04 revealed a reasonably consistent profile (Figure 3) where the very shallow, near-surface horizon includes the moist to damp, gravelly channel deposits (1,625 feet per second (ft/s)) that overlies an intermediate layer interpreted to consist of a moderately weathered and locally jointed Supai formation sandstone and siltstone bedrock with an average

seismic velocity of about 4,812 ft/s. At depths of about 24.7 feet to 27.8 feet below existing grades, a slightly weathered, high velocity layer (8,321 ft/s) was encountered. The high velocity suggests the presence of a very massive, intact rock extending to depths of more than 24 feet below the ground surface. This velocity layer is interpreted to be sandstone and siltstone of the Supai formation (Figures 11) that is expected to be broken by joint/fracture discontinuities.

2.3 Earth Fill

An existing sandy earth fill and rocky fill were observed locally along the top of the existing channel embankment. This human-placed fill soils was apparently placed for the construction of the residential properties that parallel the existing channel. It is expected that the fill is relatively unconsolidated to poorly consolidated. The quality of the fill is unknown.

2.4 Interpreted Stratigraphy

Interpretations of the subsurface stratigraphy and expected bedrock conditions are based on observations of bedrock and overburden soil along the alignment by an experienced geologist and by the interpretations of the seismic survey data depicted on Figures 3, 5, 7, and 9 and as described in sections 2.2.1 through 2.2.4 of this report. Based on our interpretations of the seismic data, the conclusions presented regarding the depth to various velocity zones are believed to be reasonable at the location of the seismic survey lines. The conditions characterized by indirect seismic methods along the seismic survey lines probably represent subsurface conditions that could be found in adjacent areas of the individual sites as depicted in Figures 4, 6, 8, and 10. The calculated depth/velocity ranges are summarized in Table 2.

2.5 Estimated Qualitative Excavateability

The estimated qualitative excavateability summarized in Table 3 is based on our interpretations of the seismic survey data, understanding of the site geological conditions, and professional experience. There is no guarantee that the seismic refraction survey results or the qualitative excavateability can be duplicated by others. We recommend this information be used with caution and only as guidelines.

Table 2
Seismic Survey Line Calculated Depth/Velocity Ranges
Harmony-Windsong Phase IV Drainage Channel

Survey Line No.	Depth Range* at Shot Point (ft)			Average Seismic Velocity (ft/sec)	Interpreted Geologic Description	Qualitative Rippability
	A	B	C			
HW3-S01	0 - 0.6	0 - 2.2	0-4.3	1,503	Channel Deposits & Alluvium/Colluvium	Slight
	0.6 - 20.3	2.2 - 16.7	4.3 - 19.2	5,839	Moderately Weathered Supai Formation Sandstone & Siltstone	Marginal to Severe
	> 20.3	> 16.7	> 19.0	12,056	Very Slightly Weathered Supai Formation Sandstone & Siltstone	Severe
HW3-S02	0 - 4.4	0 - 4.6	0 - 5.1	1,692	Channel Deposits & Alluvium/Colluvium	Slight
	> 4.4	> 4.6	> 5.1	8,180	Slightly Weathered Supai Formation Sandstone & Siltstone	Severe
HW3-S03	0 - 2.1	0 - 6.2	0 - 2.3	2,791	Channel Deposits & Very Weathered Supai Fm. Sandstone & Siltstond	Slight to Marginal
	2.1 - 14.7	6.2 - 14.8	2.3 - 7.2	5,537	Moderately Weathered Supai Formation Sandstone & Siltstone	Marginal to Severe
	>14.7	> 14.8	> 7.2	12,049	Very Slightly Weathered Supai Formation Sandstone & Siltstone	Severe
HW3-S04	0 - 2.0	0 - 6.0	0 - 4.0	1,625	Channel Deposits & Alluvium/Colluvium	Slight
	2.0 - 24.7	6.0 - 27.8	4.0 - 26.9	4,812	Moderately Weathered Supai Formation Sandstone & Siltstone	Marginal
	>24.7	>27.8	>26.9	8,321	Slightly Weathered Supai Formation Sandstone & Siltstone	Severe

Because the seismic velocities used to determine qualitative excavateability may vary from 10 to 20 percent, and due to the variability of the subsurface material, qualitative excavateability listed in Table 2 and Table 3 may overlap at the transition from one constraint category to the next.

The excavation constraints described in this report are, in our opinion, reasonable for the locations where the seismic refraction surveys were conducted. The ultimate

soil/bedrock excavateability is dependent on many factors (variably cemented soils, presence of core stones, bedrock and soil physical properties, excavation methods, size and age of excavation equipment, level of effort applied by the contractor, etc.) and it may not be possible to correlate these factors with the results of the seismic refraction surveys conducted for this investigation. The excavation contractor must exercise caution, and assume associated risks, when attempting to extrapolate these data to other areas where seismic surveys have not been conducted.

Figures 3, 5, 7, and 9 depict the average seismic velocities of the materials encountered along the seismic lines, a thickness profile of the different velocity zones, and the calculated velocity zone boundaries. Refer to Table 2 and the report sections 2.2.1 through 2.2.5 for a discussion of the individual site conditions and our interpretation of the geologic materials represented by the calculated seismic velocities.

Table 3
Qualitative Excavateability Relative to Soil/Bedrock Type & P-Wave Velocity
Harmony-Windsong Phase IV Drainage Channel Project

Unit	Average P-Wave Velocity (feet per second)	Excavateability Constraints
Earth Fill, Residual Soils/Loose to Moderately Dense Alluvial Deposits/ Very Weathered Bedrock	< 3,000	Slight- Should be able to excavate using conventional earthmoving equipment. If strongly weathered bedrock is found, rock fragments could be generated that could require special excavation methods or secondary fragmentation.
Dense, possibly Weakly to Moderately Cemented Alluvial Soils and Weathered Bedrock	3,000 to 6,000	Marginal- Potentially difficult to excavate with conventional equipment. Tabular-shaped weathered bedrock, and/or boulder sized bedrock fragments could possibly be encountered or generated in this velocity zone and could require special excavation methods or secondary fragmentation.
Moderately Weathered and Unweathered Bedrock	> 6,000	Severe- Blasting could be required for effective fragmentation. May be locally rippable along bedding, joint and fracture planes. High torque, heavy track-mounted excavators, backhoe, rock trenchers or ram-hoe could be effective but slow for trench excavations. Boulder-size fragments could be generated from excavation.

The excavateability constraints in Table 3, along with our interpretation of the subsurface materials (Tables 1 and 2) are provided so that a prospective contractor can relate seismic velocities to the subsurface materials they can expect to encounter within the required excavation depth. Although a backhoe may be able to excavate low velocity material and a D9 might be able to rip moderate to high velocity material, there are no guarantees due to the wide range of variables summarized in Section 2.5 that affect equipment suitability and soil material excavateability.

Excavateability, or the estimation of ripper performance, have been developed by others using seismic wave velocities as one indicator of rippability. The reader is referred to the Tables and charts developed by Caterpillar Inc. (1997 or later) to estimate rippability compared to the seismic velocities of the sedimentary bedrock at this site. This information may be used by prospective contractors as part of their evaluation criteria for selecting equipment that may be used to excavate or fragment site soils or rock material. No site-specific testing has been conducted at this site to verify equipment performance relative to excavating the bedrock or soils encountered at this site. However, based on our experience dealing with construction excavations at similar sites in the Supai formation in the Sedona area special equipment or blasting could be necessary to facilitate excavations along the proposed drainage channel alignment. Therefore, the contractor must exercise caution and assume associated risks if these charts and tables are used by the contractor to determine the equipment suitability for this site.

2.6 Estimated Bedrock Strength

Intact sandstone and siltstone bedrock strengths should be relatively high. According to the Unified Rock Classification System qualitative field tests, the near surface zone of intact, moderately to slightly weathered sandstone exposed along the proposed Harmony-Windsong IV Drainage Channel Project alignment sites could have an unconfined compressive strength in the range of 3,000 to 8,000 pounds per square inch (psi) or locally less. Joint/fracture discontinuities could be expected to cause a reduction in the unconfined compressive strengths.

2.7 Construction Blasting and Vibrations

Blasting could be used along the proposed drainage channel alignment for fragmentation of bedrock included in the high seismic velocity zone (interpreted to be sandstone and siltstone bedrock) to assist with the channel excavations. If blasting or heavy vibration-producing equipment, such as ram-hoes and compactors, is used to assist with the excavations made at this site, the contractor should be required to keep ground vibrations from any construction source within applicable safe limits for surrounding structures including buildings and utilities.

The contractor should be experienced with controlled blasting and excavation techniques in residential areas and in hard sedimentary bedrock terrain similar to that found in this project area. Also the blasting should be conducted in accordance with the current International Fire Code or other rules and codes mandated by the Town of Sedona and State and Federal agencies that have jurisdiction relative to blasting operations. We recommend preconstruction and pre-blast surveys be made of all structures within 500 feet of the proposed construction or as specified in appropriate fire codes for the jurisdiction where the blast is conducted, whichever is the greatest distance. Likewise, construction equipment operations and blasting should be monitored during construction to assure the ground vibrations are within safe limits. However, we recommend the construction/blasting vibrations be limited to less than one inch per second peak particle velocity for residential/commercial areas and for sensitive structures or components such as buried gas and water lines unless more restrictive allowable vibration limits are specified by other regulatory authorities. The purpose of the preconstruction surveys and construction vibration monitoring is to limit liability for property owners, the contractor, and other involved parties.

We recommend adequate “safety zones” be established and maintained around the proposed excavation sites during construction.

3.0 GEOPHYSICAL SITE INVESTIGATION

An investigation along this segment of the proposed Harmony-Windsong IV Drainage Channel Project included seismic refraction geophysical surveys and the analysis and interpretation of seismic survey data to indirectly characterize the alignment subsurface conditions.

3.1 Site Specific Seismic Surveys

Following the completion of a site reconnaissance to identify the survey location, seismic refraction surveys were made at the sites depicted in Figures 2. The seismic surveys were conducted to evaluate the soil or fill overburden thickness, to determine the depth to bedrock or “rocklike” material, to identify fills that may be present in likely excavation areas, and to characterize subsurface conditions that could influence site design and construction.

The site specific seismic survey line locations (Figure 2) were chosen by Geological Consultants and Speedie & Associates. A rough position survey was conducted by Geological Consultants Inc. using a hand-held Garmin eTrex GPS receiver to obtain approximate geographic coordinates to locate the seismic survey lines. A Brunton pocket transit (a geologists’ compass) was used to determine the seismic survey line orientations. Photographs were taken at each of the seismic refraction survey lines (Figures 4, 6, 8, and 10).

Three shot points are used along each seismic survey line to evaluate possible non-horizontal subsurface boundary conditions (buried sloping surfaces, cementation zones, bedrock boundaries, etc.) that could be expected in this type of geological terrain, and to improve the accuracy of the seismic wave velocity determinations. The seismic traverses were run over a length sufficient to achieve adequate depth penetration and to identify the subsurface zones that could influence excavations at the project site. In our opinion, thirty feet of depth penetration, or more, was achieved at each of the seismic refraction survey sites.

As with any type of geophysical investigation method, there are limitations to its usefulness and application. Refer to Appendix A for additional information regarding seismic refraction surveys and their limitations.

3.2 Equipment

Travel-time data for the seismic line traverses were obtained using Geometrics Inc. Model S12 SmartSeis™ 12-Channel Exploration Seismograph. Seismic wave arrivals are detected with digital grade vertical geophones with a dual hum-bucking coil and a frequency response above 14 Hz natural frequency. The seismic shock wave is produced by repeated impacts of a 16-pound sledge hammer onto a soft steel striking plate. Hammer impacts were made at 5-foot offset points from each end of the seismic line and at a shot point located at the center of the survey line spread. The distance from the impact station to the geophones and the travel time recorded for each station is stored in the seismographs onboard computer. If the field seismic data plots indicated the possible presence of anomalous subsurface conditions or spurious noise coincident with the hammer impacts, repeated impacts are used to verify the initial data reading or to correct the data. Topography, outcrops, and other natural or man-made features found along the seismic survey lines that might influence the data interpretations are annotated with the field data plots.

3.3 Results

Interpretations of the seismic survey data obtained at the project site suggest the presence of a distinctive, but similar, stratigraphic profile along each of the seismic survey lines. Seismic velocities, calculated zone thicknesses, and depth to velocity zone boundaries for each interpreted bedrock or soil types are depicted in Figures 3, 5, 7, and 9 and summarized in Table 2. The elevation data depicted on the Y-axis of the Depth Cross-Sections is based on information derived from a level survey using an arbitrary datum. The data depicted on the figures can be used to scale depths to different velocity layers below the ground surface. The estimated accuracy of the velocity layer boundaries is approximately 20 percent.

4.0 GENERAL LIMITATIONS

The geologic observations, findings, conclusions, and recommendations presented in this report are based on (1) cursory observations of surface conditions and geologic materials where exposed at each of the seismic survey line locations, (2) our familiarity with the geology in the project vicinity, and (3) analysis of the seismic refraction survey data gathered at each seismic survey line site. The services provided by Geological Consultants Inc. were performed in accordance with generally accepted geological principals and standard practices used by members of the geological profession in this locale at the time of this study.

It must be recognized that subsurface geologic conditions may vary from place to place and from those found at locations where measurements or surveys are made by the investigator.

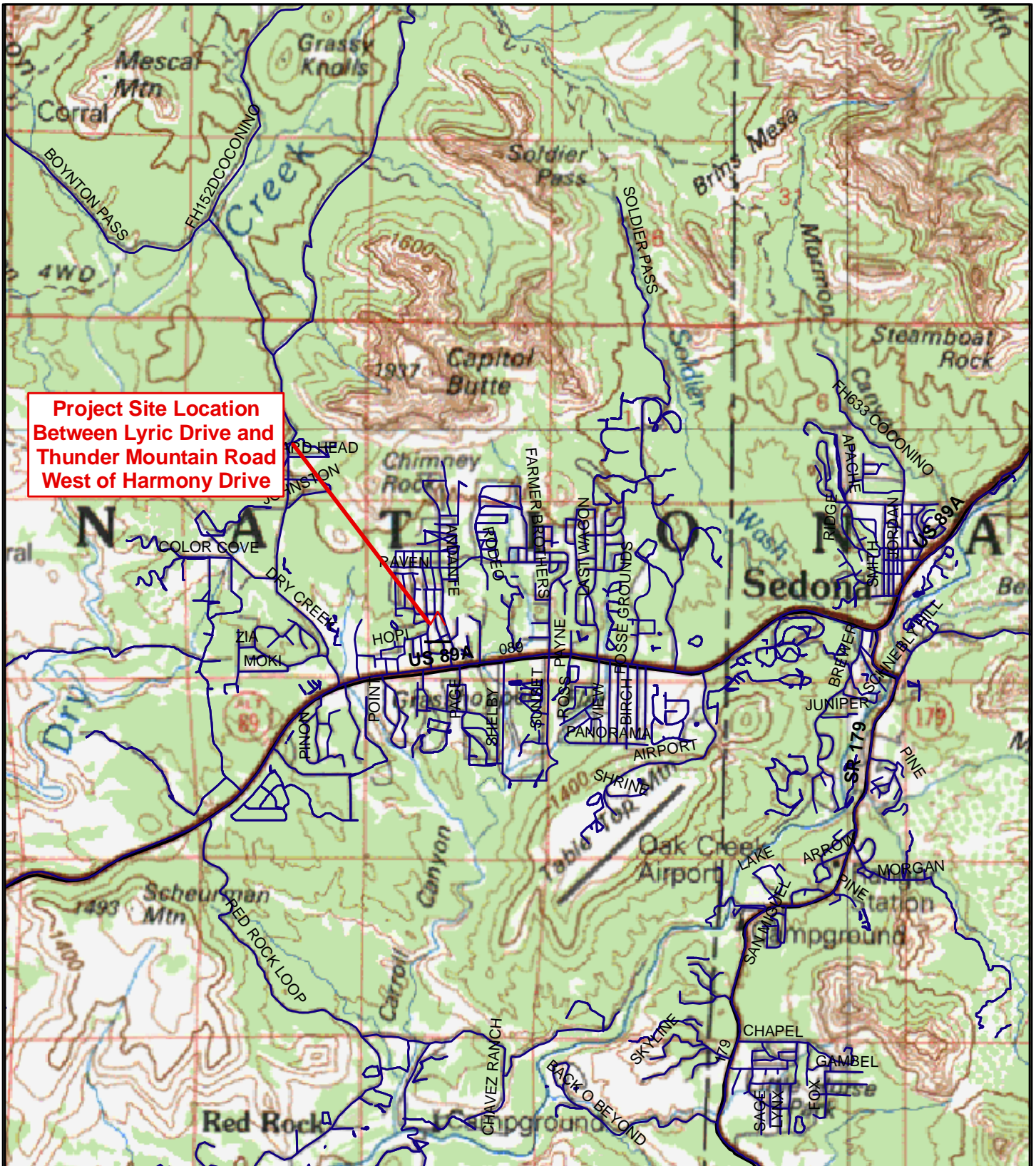
Generalized geological and excavateability recommendations presented in this report are based on the results of this investigation and it may not be possible for others to accurately correlate the geological and excavateability results to test explorations or investigations conducted by others. No warranty or representation, either expressed or implied, is or should be construed regarding geological conditions at locations other than those evaluated as part of this study.

The professional opinions, conclusions and recommendations presented in this report relate only to the project and locations specified in this report. If any changes are made in the project, the conclusions and/or recommendations in this report shall not be considered valid unless the changes are reviewed and the conclusions and recommendations of this study are modified and approved in writing by Geological Consultants Inc.

5.0 Bibliography

Caterpillar, Inc.; 1997; Caterpillar Performance Handbook, Estimating Production, Use of Seismic Velocity Charts; Cat Publications, Peoria Illinois; Pages 1-60 to 1-75.

FIGURES



**Project Site Location
Between Lyric Drive and
Thunder Mountain Road
West of Harmony Drive**

**Harmony-Windsong III Drain Project
Seismic Refraction Surveys
General Location Map
Figure 1**

Base Map: USGS 30x60 Sedona
Quadrangle

1:48,000



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EXPLANATION:

A—C Seismic Survey Line Location (Seismic Survey Length ~110')



Harmony - Windsong Phase IV Drain Project
 Seismic Refraction Survey
 Seismic Line Locations
 (HW3-S01 and HW3-S02)

Figure 2a



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Note: Seismic survey line completed November 20, 2012; GCI Project No. 2012-146.



EXPLANATION:

A—C Seismic Survey Line Location (Seismic Survey Length ~110')

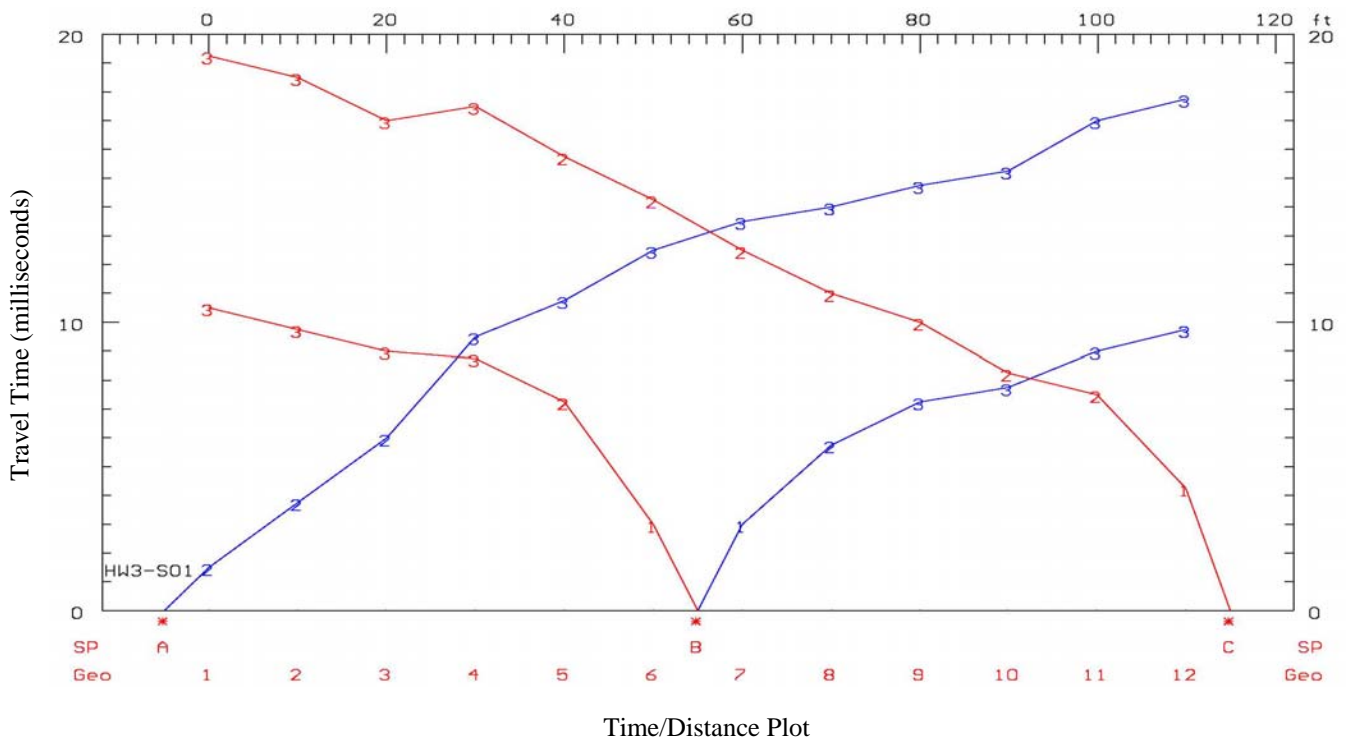
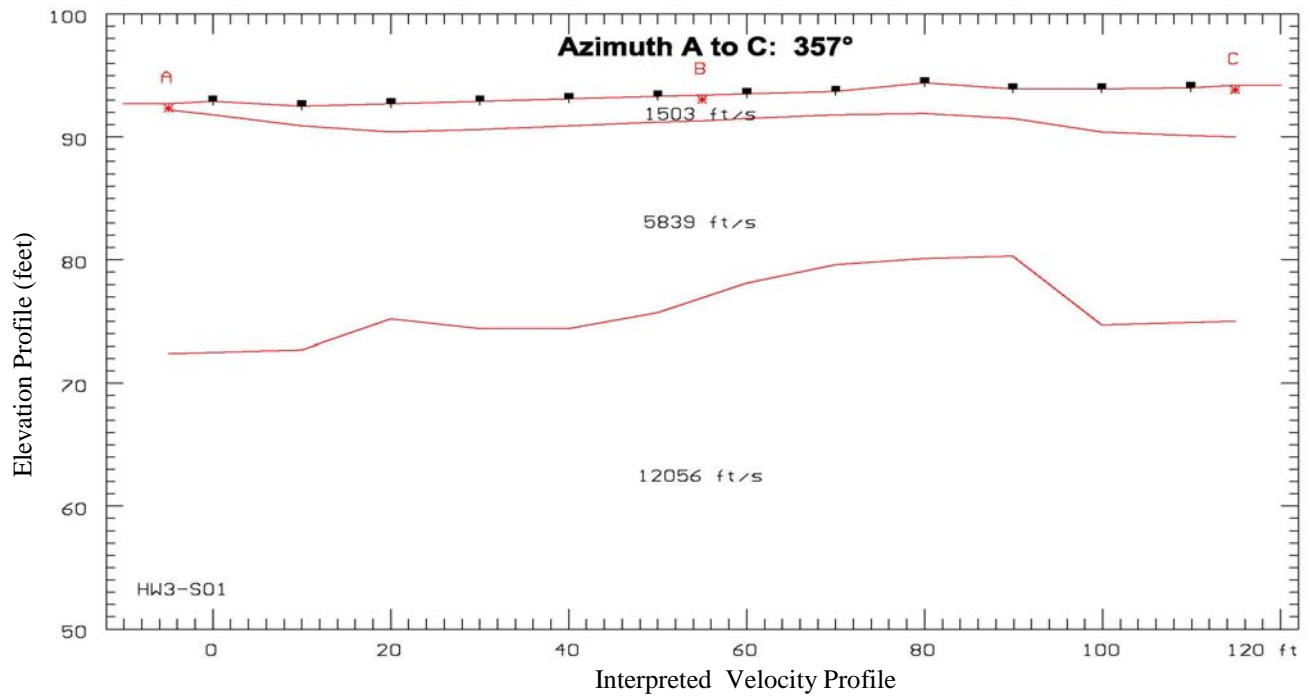


Harmony - Windsong Phase IV Drain Project
 Seismic Refraction Survey
 Seismic Line Locations
 (HW3-S03 and HW3-S04)
 Figure 2b



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Note: Seismic survey line completed November 20, 2012; GCI Project No. 2012-146.



Refer to Figures 2a for survey line location.

**Harmony - Windsong Phase IV Drain Project
Seismic Refraction Survey
Seismic Survey Line HW3-S01
Figure 3**



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Figure 4; Photo 1: Seismic Survey Line HW3-S01. Crudely stratified alluvium in the vicinity of Shot Point A.



Figure 4; Photo 2: Seismic Survey Line HW3-S01. Outcrop of Supai formation bedrock in the vicinity of Shot Point C.

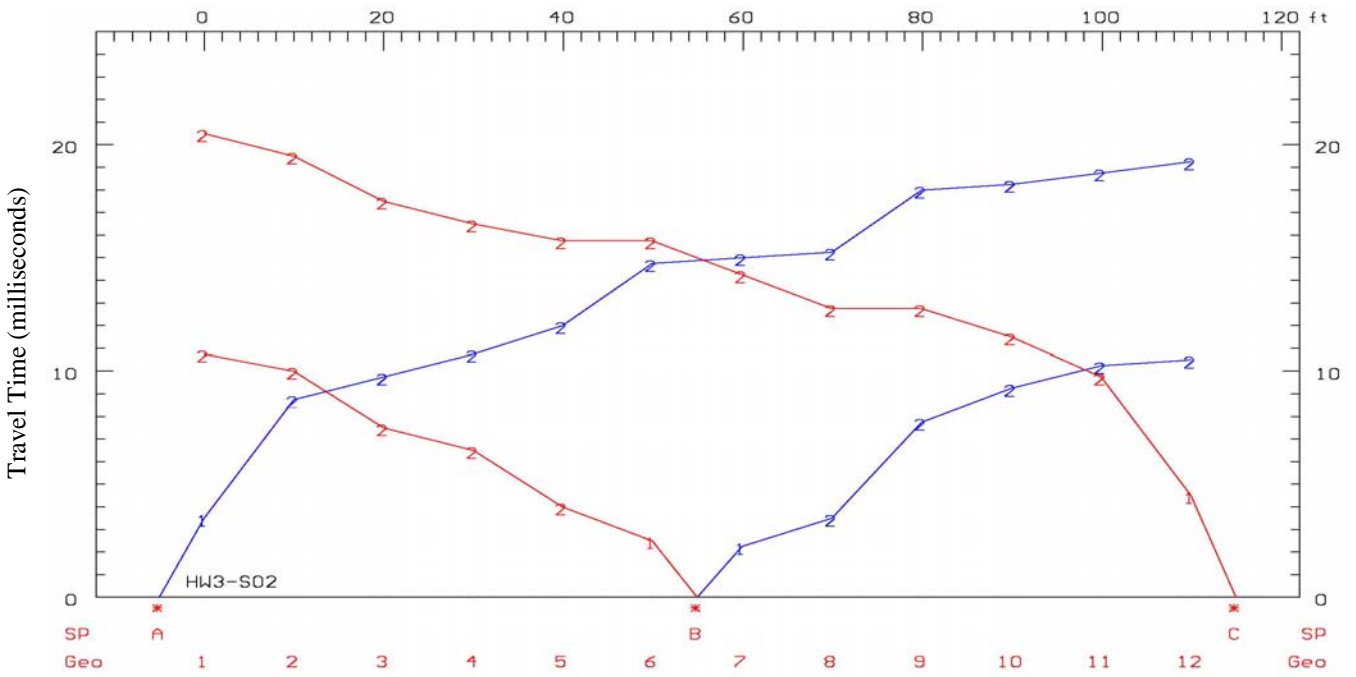
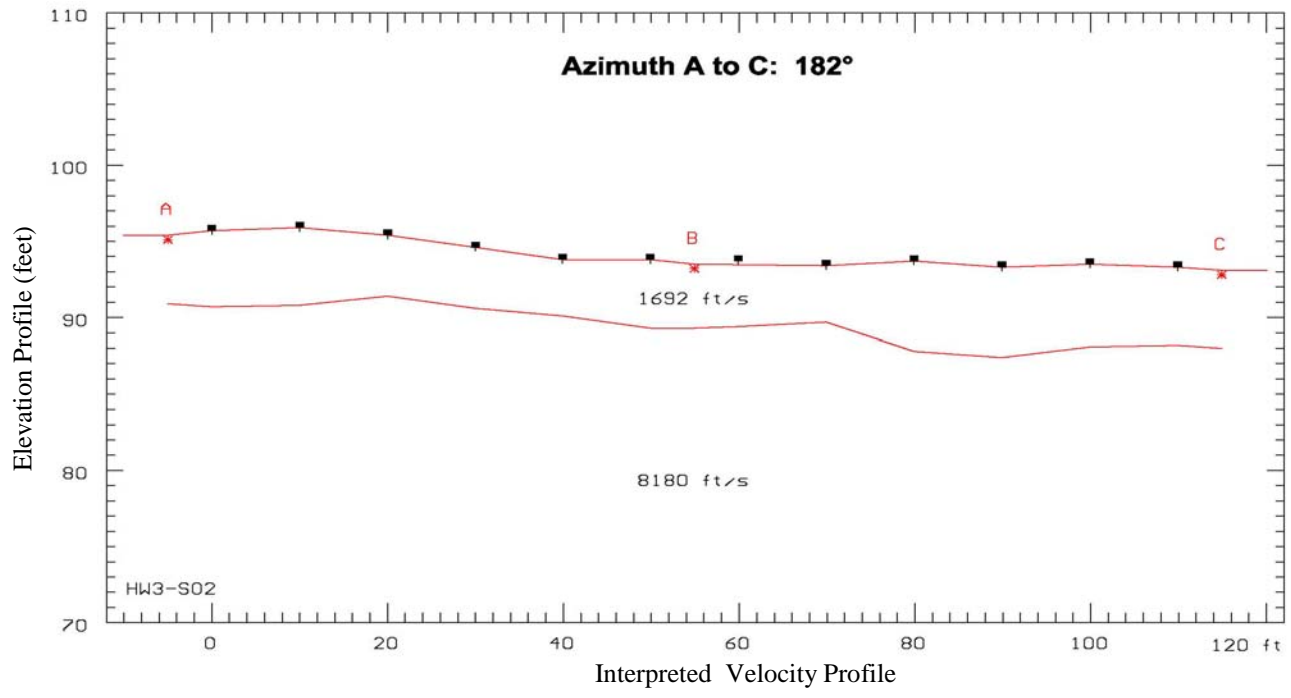
Photographs of seismic survey line HW3-S01 taken November 20, 2012 by K. Euge, R.G.; Geological Consultants Inc. Project No. 2012-146

Seismic survey line location: A-shot point start; C-shot point end. Refer to Figure 2a for seismic survey line location and Figure 3 for interpreted seismic line profiles.

Harmony - Windsong Phase IV Drain Project
Seismic Survey Line HW3-S01
Location Photographs
Figure 4



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Refer to Figures 2a for survey line location.

**Harmony - Windsong Phase IV Drain Project
Seismic Refraction Survey
Seismic Survey Line HW3-S02
Figure 5**



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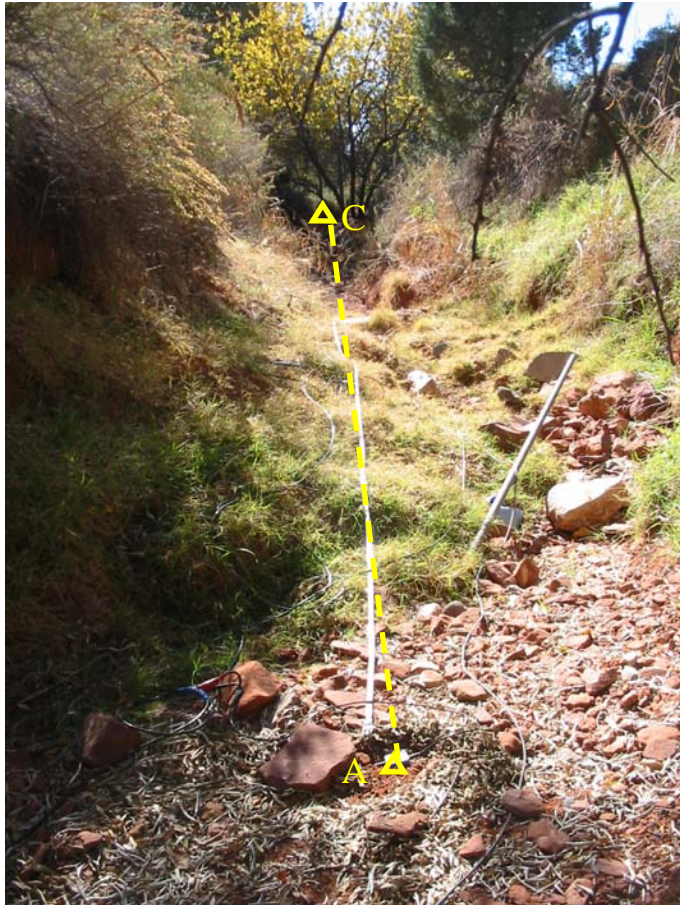


Figure 6; Photo 1: Seismic Survey Line HW3-S02 view looking toward the North along existing drainage channel from geophone A toward geophone C.



Figure 6; Photo 2: Seismic Survey Line HW3-S02 view looking toward the South along existing drainage channel from geophone C to geophone A.

Photographs of seismic survey line HW3-S02 taken November 20, 2012 by K. Euge, R.G.; Geological Consultants Inc. Project No.

Explanation:

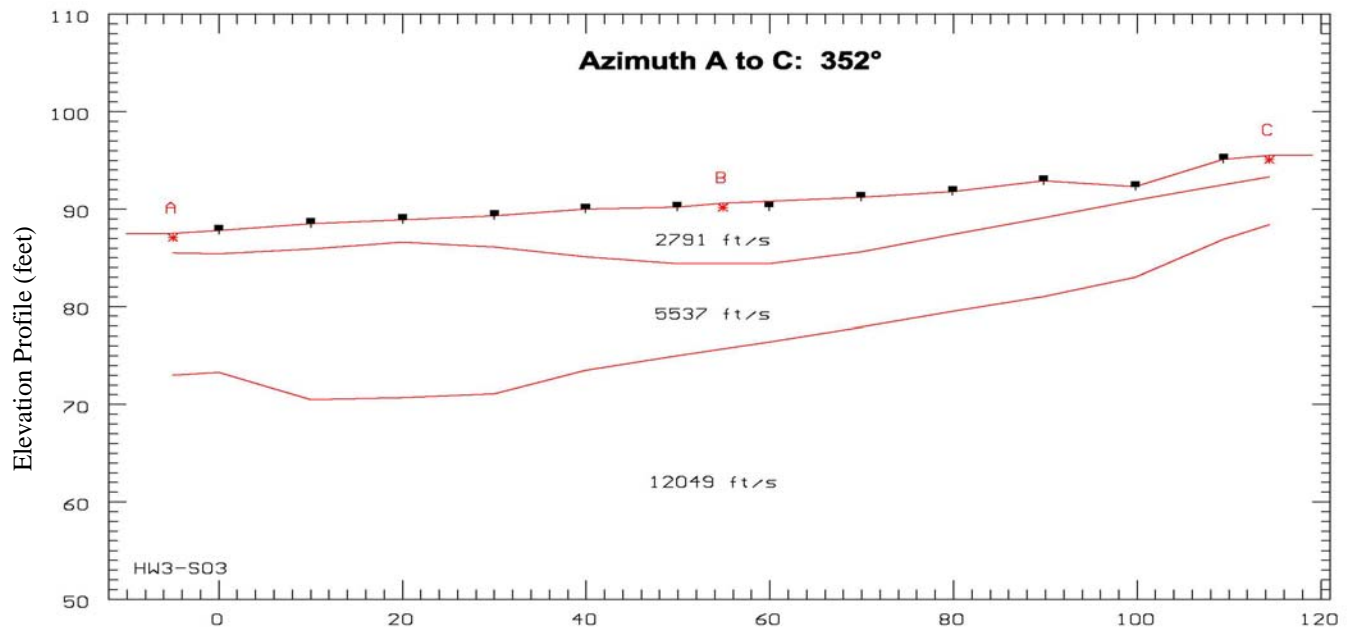


Seismic survey line location: A-shot point start; C-shot point end. Refer to Figure 2a for seismic survey line location and Figure 5 for interpreted seismic line profiles.

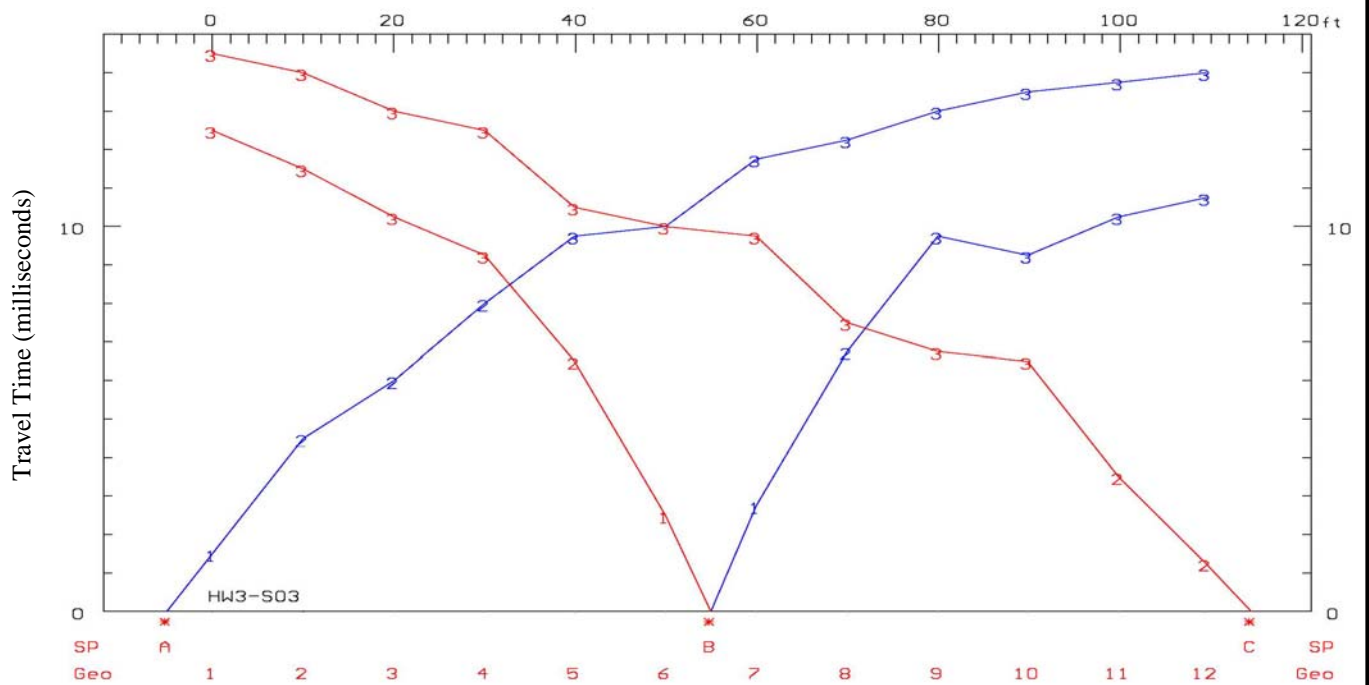
Harmony - Windsong Phase IV Drain Project
 Seismic Survey Line HW3-S02
 Location Photographs
 Figure 6



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Interpreted Velocity Profile



Time/Distance Plot

Refer to Figures 2b for survey line location.

**Harmony - Windsong Phase IV Drain Project
Seismic Refraction Survey
Seismic Survey Line HW3-S03
Figure 7**



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Figure 8; Photo 1: Seismic Survey Line HW3-S03 view looking toward the North along existing drainage channel from geophone A toward geophone C.

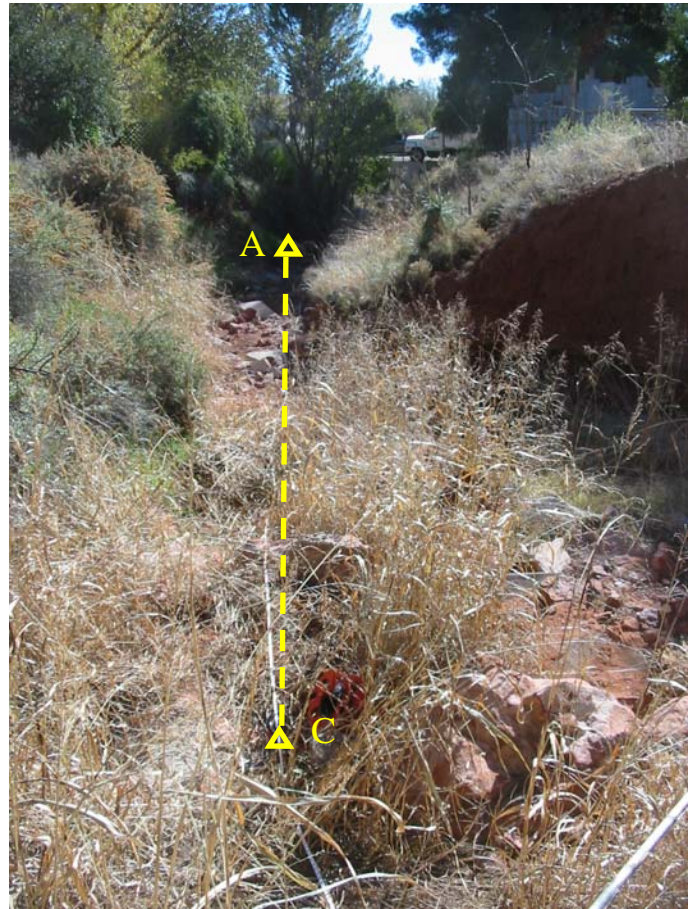


Figure 8; Photo 2: Seismic Survey Line HW3-S03 view looking toward the South along existing drainage channel from geophone C to geophone A.

Photographs of seismic survey line HW3-S03 taken November 20, 2012 by K. Euge, R.G.; Geological Consultants Inc. Project No.

Explanation:

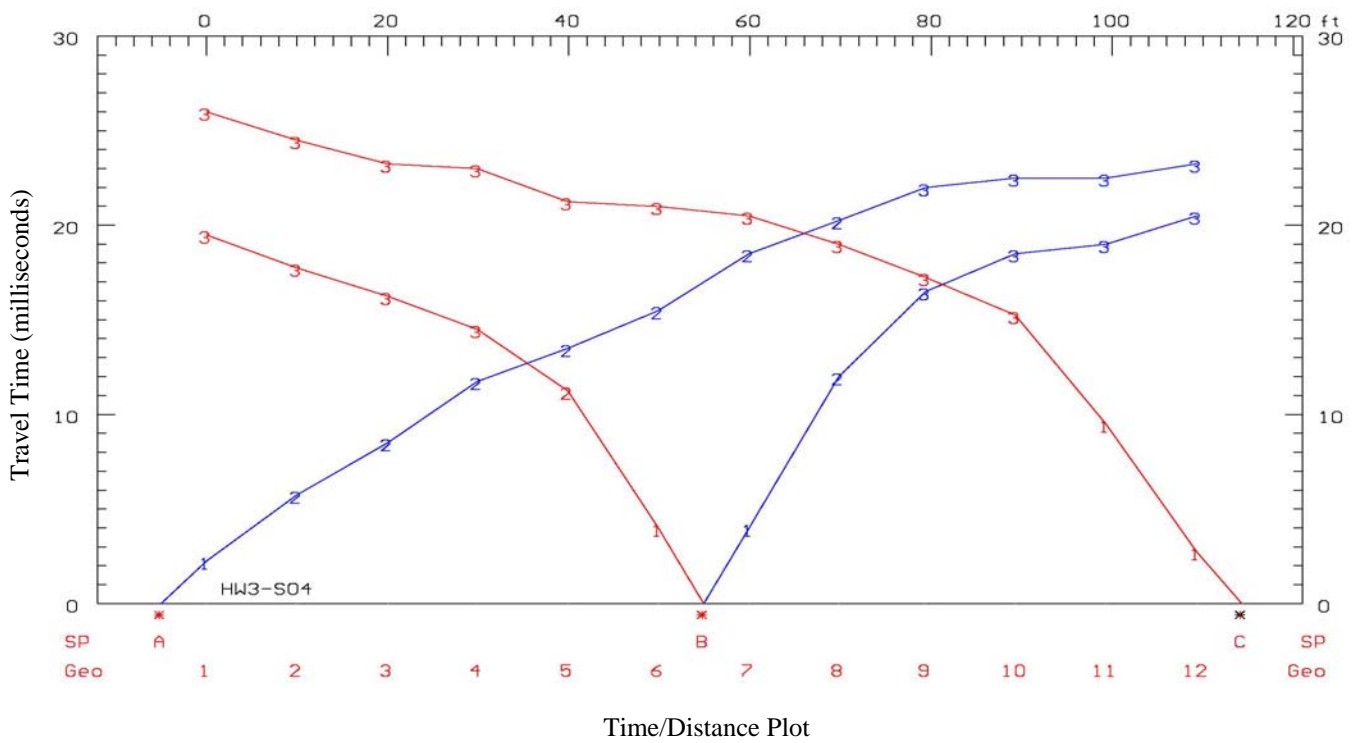
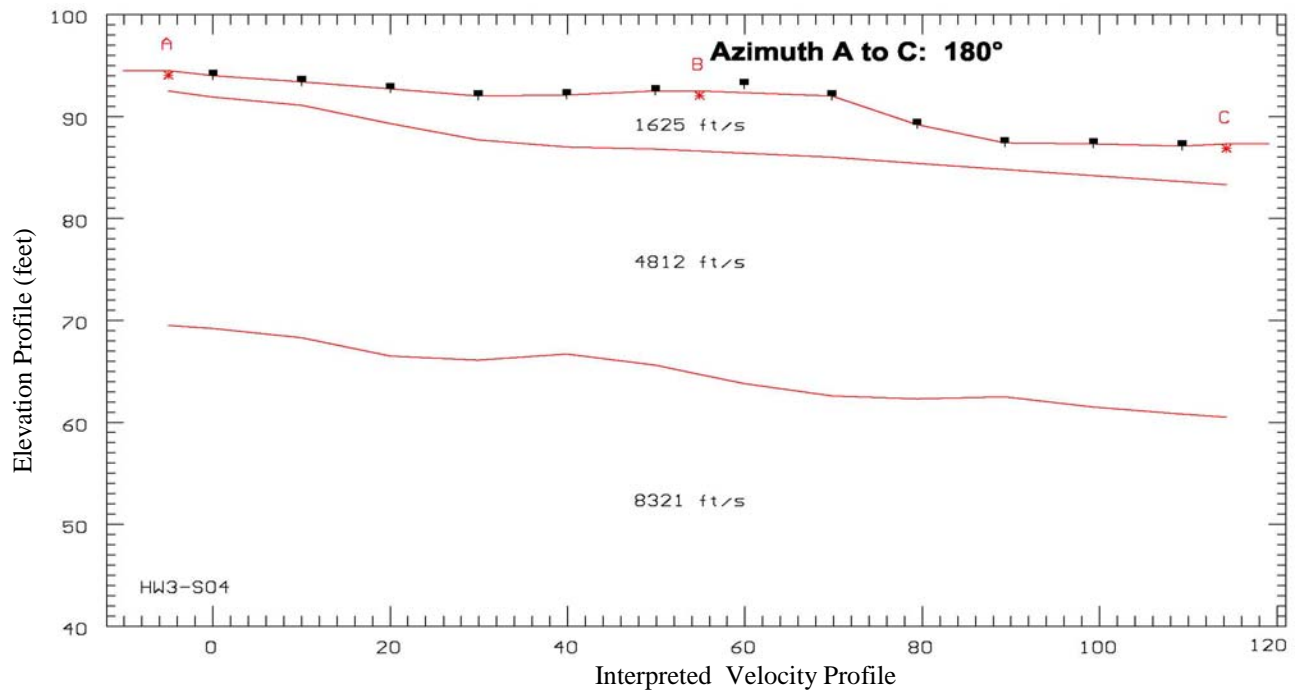


Seismic survey line location: A-shot point start; C-shot point end. Refer to Figure 2b for seismic survey line location and Figure 7 for interpreted seismic line profiles.

Harmony - Windsong Phase IV Drain Project
Seismic Survey Line HW3-S03
Location Photographs
Figure 8



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Refer to Figures 2b for survey line location.

**Harmony - Windsong Phase IV Drain Project
Seismic Refraction Survey
Seismic Survey Line HW3-S04
Figure 9**



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Figure 10; Photo 1: Seismic Survey Line HW3-S04 view looking toward the North along existing drainage channel from geophone A toward geophone C.



Figure 10; Photo 2: Seismic Survey Line HW3-S04 view looking toward the South along existing drainage channel from geophone C to geophone A.

Photographs of seismic survey line HW3-S04 taken November 20, 2012 by K. Euge, R.G.; Geological Consultants Inc. Project No.

Explanation:



Seismic survey line location: A-shot point start; C-shot point end. Refer to Figure 2b for seismic survey line location and Figure 9 for interpreted seismic line profiles.

Harmony - Windsong Phase IV Drain Project
 Seismic Survey Line HW3-S04
 Location Photographs
 Figure 10



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Figure 11a; Photo 1: Silty-sand with gravel alluvium derived from the weathering of the Supai Formation in the vicinity of HS3-S02.

Figure 11a; Photo 2: Outcrop of weathered and broken massive to thick bedded silty-sandstone of the Supai Formation, located upstream from Seismic Survey Line HW3-S03



Harmony - Windsong Phase IV Drain Project
Seismic Refraction Surveys
Alignment Geology & Soils Photographs
Figure 11a

Photographs taken November 20, 2012 by K. Euge, R.G.; Geological Consultants Inc. Project No. 2012-146



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Figure 11b; Photo 1: Failed erosion protection located in the vicinity of seismic survey line HW3-S04.



Figure 11b; Photo 2: Failed erosion protection - undercut shotcrete in the vicinity of HW3-S04.

Harmony - Windsong Phase IV Drain Project
Seismic Refraction Surveys
Alignment Geology & Soils Photographs
Figure 11b

Photographs taken November 20, 2012 by K. Euge, R.G.; Geological Consultants Inc. Project No. 2012-146



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APPENDIX A

SEISMIC REFRACTION SURVEY

APPENDIX A

SEISMIC REFRACTION SURVEY

A.1 GENERAL

In general, seismic wave velocities are related to the hardness, consolidation, and density of the materials through which seismic (shock) waves travel. Seismic velocities of subsurface soils and bedrock can be correlated to some of the physical properties of the material with reasonable levels of confidence. As with rock rippability (ease of excavation) for example, the Caterpillar tractor Company has correlated ranges of seismic velocities in different rock and soil materials to qualitative estimates of rippability for their D-9 tractor with a mounted hydraulic No.9 ripper.

The use of seismic velocities measured in various soils and rock types are considered reasonably conservative for evaluating soil and rock characteristics by "indirect" shallow geophysical seismic methods. Some general correlations are as follows:

- Soil, loose surface material, alluvium and strongly weathered and broken bedrock has velocities ranging from 500 feet per second (ft/s) to 1,200 ft/s.
- Moderately hard, slightly to moderately cemented, dense alluvial and colluvial sediments and moderately weathered and broken bedrock range from 1,200 ft/s to 3,000 ft/s.
- Very dense, hard, well-cemented soils and moderately competent bedrock could range from 3,000 ft/s to 6,000 ft/s.
- Sound, relatively homogeneous or tightly jointed bedrock and uniformly, strongly cemented soils (silica hardpan, caliche, calcrete, etc.) have seismic velocities greater than 6,000 ft/s.

Generally, soils and strongly weathered bedrock with calculated seismic velocities less than 3,000 ft/s can be excavated using conventional earthmoving equipment. Where materials with velocities in excess of 6,000 ft/s are found, blasting would normally be required for efficient fragmentation. However, if the rock is thinly bedded, jointed, or fractured, it may be ripped with a single shank ripper or large ram-hoe. The resulting size of the rock fragments will be

consistent with the fracture spacings. The progress of the excavation should be expected to be very slow. Intermediate velocity soil or rock encountered within the zones could range between 3,000 ft/s and 6,000 ft/s could require heavy equipment and possibly the localized use of jack-hammers, ram-hoes, or selective blasting to provide cost-effective excavation.

A.2 DATA COLLECTION

Refraction data are collected along seismic survey lines consisting of 12 geophones spaced 10 feet apart. This geometry provided coverage of about 110 feet along each survey line. Refer to Figure 2 for the seismic survey line locations. Seismic waves were generated at shot points located at or near the line ends and the center to measure shallow materials (near-surface) seismic velocities. Data recorded from offsets past the line ends measure the deeper velocity zones where encountered. Data were recorded from both line ends so the effect of layer inclination, or dip on velocity boundaries, could be calculated. This geometry can provide 30 feet to 40 feet, or more, of penetration at most line locations.

A.3 REFRACTION SEISMIC SURVEY LIMITATIONS

The seismic survey data presented in this report are derived from and interpreted from an indirect geophysical investigative technique (seismic refraction surveys) employed at the specific locations indicated and from observations made of the surface geologic conditions exposed at the site. The interpretations made at the specific seismic survey sites are believed to be reasonable based on the information available at the time of this study. The interpretations may not represent, nor are they intended to represent, subsurface conditions at other locations.

Geologic contacts between rock and soil units are approximate, may be either gradual or abrupt, and the calculated depths could vary from 10 to 20 percent or more. Geological and geotechnical information provided others and our experience on similar projects in similar geological terrain were considered in the interpretations of subsurface conditions.

A.4 REFRACTION DATA PROCESSING

Seismic Refraction Interpretation Programs (SIP) computer programs by RIMROCK GEOPHYSICS, were used to analyze seismic data obtained in the field. The programs calculate average velocities of any number of layers assuming the multilayered intervals do not include velocity inversions or "hidden" zones (i. e., high velocity zone over a low velocity zone).

Thicknesses of each layer, except for the lowermost layer, are calculated along with the dip (inclination) angle of the layer boundary. The depth below the ground surface to each layer boundary is also provided.

Input data, velocity of each layer and seismic wave arrival times, obtained during the field work are checked by the computer program to assure that they satisfy reciprocity at least within 20 percent. These data are used to develop a meaningful geological model used to interpret subsurface stratigraphic conditions.

2012 Nationwide Permits, Conditions, District Engineer’s Decision, Further Information, and Definitions (with corrections¹)

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¹ Corrections published in the *Federal Register* on March 19, 2012 (77 FR 16021) and September 21, 2012 (77 FR 58532).

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B. Nationwide Permits

1. Aids to Navigation. The placement of aids to navigation and regulatory markers which are approved by and installed in accordance with the requirements of the U.S. Coast Guard (see 33 CFR, chapter I, subchapter C, part 66). (Section 10)

2. Structures in Artificial Canals. Structures constructed in artificial canals within principally residential developments where the connection of the canal to a navigable water of the United States has been previously authorized (see 33 CFR 322.5(g)). (Section 10)

3. Maintenance. (a) The repair, rehabilitation, or replacement of any previously authorized, currently serviceable structure, or fill, or of any currently serviceable structure or fill authorized by 33 CFR 330.3, provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification. Minor deviations in the structure's configuration or filled area, including those due to changes in materials, construction techniques, requirements of other regulatory agencies, or current construction codes or safety standards that are necessary to make the repair, rehabilitation, or replacement are authorized. Any stream channel modification is limited to the minimum necessary for the repair, rehabilitation, or replacement of the structure or fill; such modifications, including the removal of material from the stream channel, must be immediately adjacent to the project or within the boundaries of the structure or fill. This NWP also authorizes the repair, rehabilitation, or replacement of those structures or fills destroyed or damaged by storms, floods, fire or other discrete events, provided the repair, rehabilitation, or replacement is commenced, or is under contract to commence, within two years of the date of their destruction or damage. In cases of catastrophic events, such as hurricanes or tornadoes, this two-year limit may be waived by the district engineer, provided the permittee can demonstrate funding, contract, or other similar delays.

(b) This NWP also authorizes the removal of accumulated sediments and debris in the vicinity of existing structures (e.g., bridges, culverted road crossings, water intake structures, etc.) and/or the placement of new or additional riprap to protect the structure. The removal of sediment is limited to the minimum necessary to restore the waterway in the vicinity of the structure to the approximate dimensions that existed when the structure was built, but cannot extend farther than 200 feet in any direction from the structure. This 200 foot limit does not apply to maintenance dredging to remove accumulated sediments blocking or restricting outfall and intake structures or to maintenance dredging to remove accumulated sediments from canals associated with outfall and intake structures. All dredged or excavated materials must be deposited and retained in an area that has no waters of the United States unless otherwise specifically approved by the district engineer under separate authorization. The placement of new or additional riprap must be the minimum necessary to protect the structure or to ensure the safety of the structure. Any bank stabilization measures not directly associated with the structure will require a separate authorization from the district engineer.

(c) This NWP also authorizes temporary structures, fills, and work necessary to conduct the maintenance activity. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

(d) This NWP does not authorize maintenance dredging for the primary purpose of navigation. This NWP does not authorize beach restoration. This NWP does not authorize new stream channelization or stream relocation projects.

Notification: For activities authorized by paragraph (b) of this NWP, the permittee must submit a pre-construction notification to the district engineer prior to commencing the activity (see general condition 31). The pre-construction notification must include information regarding the original design capacities and configurations of the outfalls, intakes, small impoundments, and canals. (Sections 10 and 404)

Note: This NWP authorizes the repair, rehabilitation, or replacement of any previously authorized structure or fill that does not qualify for the Clean Water Act Section 404(f) exemption for maintenance.

4. Fish and Wildlife Harvesting, Enhancement, and Attraction Devices and Activities. Fish and wildlife harvesting devices and activities such as pound nets, crab traps, crab dredging, eel pots, lobster traps, duck blinds, and clam and oyster digging, fish aggregating devices, and small fish attraction devices such as open water fish concentrators (sea kites, etc.). This NWP does not authorize artificial reefs or impoundments and semi-impoundments of waters of the United States for the culture or holding of motile species such as lobster, or the use of covered oyster trays or clam racks. (Sections 10 and 404)

5. Scientific Measurement Devices. Devices, whose purpose is to measure and record scientific data, such as staff gages, tide and current gages, meteorological stations, water recording and biological observation devices, water quality testing and improvement devices, and similar structures. Small weirs and flumes constructed primarily to record water quantity and velocity are also authorized provided the discharge is limited to 25 cubic yards. Upon completion of the use of the device to measure and record scientific data, the measuring device and any other structures or fills associated with that device (e.g., foundations, anchors, buoys, lines, etc.) must be removed to the maximum extent practicable and the site restored to pre-construction elevations. (Sections 10 and 404)

6. Survey Activities. Survey activities, such as core sampling, seismic exploratory operations, plugging of seismic shot holes and other exploratory-type bore holes, exploratory trenching, soil surveys, sampling, sample plots or transects for wetland delineations, and historic resources surveys. For the purposes of this NWP, the term “exploratory trenching” means mechanical land clearing of the upper soil profile to expose bedrock or substrate, for the purpose of mapping or sampling the exposed material. The area in which the exploratory trench is dug must be restored to its pre-construction elevation upon completion of the work and must not drain a water of the United States. In wetlands, the top 6 to 12 inches of the trench should

normally be backfilled with topsoil from the trench. This NWP authorizes the construction of temporary pads, provided the discharge does not exceed 1/10-acre in waters of the U.S. Discharges and structures associated with the recovery of historic resources are not authorized by this NWP. Drilling and the discharge of excavated material from test wells for oil and gas exploration are not authorized by this NWP; the plugging of such wells is authorized. Fill placed for roads and other similar activities is not authorized by this NWP. The NWP does not authorize any permanent structures. The discharge of drilling mud and cuttings may require a permit under Section 402 of the Clean Water Act. (Sections 10 and 404)

7. Outfall Structures and Associated Intake Structures. Activities related to the construction or modification of outfall structures and associated intake structures, where the effluent from the outfall is authorized, conditionally authorized, or specifically exempted by, or otherwise in compliance with regulations issued under the National Pollutant Discharge Elimination System Program (Section 402 of the Clean Water Act). The construction of intake structures is not authorized by this NWP, unless they are directly associated with an authorized outfall structure.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 31.) (Sections 10 and 404)

8. Oil and Gas Structures on the Outer Continental Shelf. Structures for the exploration, production, and transportation of oil, gas, and minerals on the outer continental shelf within areas leased for such purposes by the Department of the Interior, Bureau of Ocean Energy Management. Such structures shall not be placed within the limits of any designated shipping safety fairway or traffic separation scheme, except temporary anchors that comply with the fairway regulations in 33 CFR 322.5(l). The district engineer will review such proposals to ensure compliance with the provisions of the fairway regulations in 33 CFR 322.5(l). Any Corps review under this NWP will be limited to the effects on navigation and national security in accordance with 33 CFR 322.5(f), as well as 33 CFR 322.5(l) and 33 CFR part 334. Such structures will not be placed in established danger zones or restricted areas as designated in 33 CFR part 334, nor will such structures be permitted in EPA or Corps designated dredged material disposal areas.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 31.) (Section 10)

9. Structures in Fleeting and Anchorage Areas. Structures, buoys, floats and other devices placed within anchorage or fleeting areas to facilitate moorage of vessels where the U.S. Coast Guard has established such areas for that purpose. (Section 10)

10. Mooring Buoys. Non-commercial, single-boat, mooring buoys. (Section 10)

11. Temporary Recreational Structures. Temporary buoys, markers, small floating docks, and similar structures placed for recreational use during specific events such as water skiing competitions and boat races or seasonal use, provided that such structures are removed within 30 days after use has been discontinued. At Corps of Engineers reservoirs, the reservoir manager must approve each buoy or marker individually. (Section 10)

12. Utility Line Activities. Activities required for the construction, maintenance, repair, and removal of utility lines and associated facilities in waters of the United States, provided the activity does not result in the loss of greater than 1/2-acre of waters of the United States for each single and complete project.

Utility lines: This NWP authorizes the construction, maintenance, or repair of utility lines, including outfall and intake structures, and the associated excavation, backfill, or bedding for the utility lines, in all waters of the United States, provided there is no change in pre-construction contours. A “utility line” is defined as any pipe or pipeline for the transportation of any gaseous, liquid, liquescent, or slurry substance, for any purpose, and any cable, line, or wire for the transmission for any purpose of electrical energy, telephone, and telegraph messages, and radio and television communication. The term “utility line” does not include activities that drain a water of the United States, such as drainage tile or french drains, but it does apply to pipes conveying drainage from another area.

Material resulting from trench excavation may be temporarily sidecast into waters of the United States for no more than three months, provided the material is not placed in such a manner that it is dispersed by currents or other forces. The district engineer may extend the period of temporary side casting for no more than a total of 180 days, where appropriate. In wetlands, the top 6 to 12 inches of the trench should normally be backfilled with topsoil from the trench. The trench cannot be constructed or backfilled in such a manner as to drain waters of the United States (e.g., backfilling with extensive gravel layers, creating a french drain effect). Any exposed slopes and stream banks must be stabilized immediately upon completion of the utility line crossing of each waterbody.

Utility line substations: This NWP authorizes the construction, maintenance, or expansion of substation facilities associated with a power line or utility line in non-tidal waters of the United States, provided the activity, in combination with all other activities included in one single and complete project, does not result in the loss of greater than 1/2-acre of waters of the United States. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters of the United States to construct, maintain, or expand substation facilities.

Foundations for overhead utility line towers, poles, and anchors: This NWP authorizes the construction or maintenance of foundations for overhead utility line towers, poles, and anchors in all waters of the United States, provided the foundations are the minimum size necessary and separate footings for each tower leg (rather than a larger single pad) are used where feasible.

Access roads: This NWP authorizes the construction of access roads for the construction and maintenance of utility lines, including overhead power lines and utility line substations, in non-tidal waters of the United States, provided the activity, in combination with all other activities included in one single and complete project, does not cause the loss of greater than 1/2-acre of non-tidal waters of the United States. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters for access roads. Access roads must be the minimum width necessary (see Note 2, below). Access roads must be constructed so that the length of the road minimizes any adverse effects on waters of the United States and must be as near as possible to pre-construction contours and elevations (e.g., at grade corduroy roads or geotextile/gravel roads). Access roads constructed above pre-construction contours and elevations in waters of the United States must be properly bridged or culverted to maintain surface flows.

This NWP may authorize utility lines in or affecting navigable waters of the United States even if there is no associated discharge of dredged or fill material (See 33 CFR Part 322).

Overhead utility lines constructed over section 10 waters and utility lines that are routed in or under section 10 waters without a discharge of dredged or fill material require a section 10 permit.

This NWP also authorizes temporary structures, fills, and work necessary to conduct the utility line activity. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if any of the following criteria are met: (1) the activity involves mechanized land clearing in a forested wetland for the utility line right-of-way; (2) a section 10 permit is required; (3) the utility line in waters of the United States, excluding overhead lines, exceeds 500 feet; (4) the utility line is placed within a jurisdictional area (i.e., water of the United States), and it runs parallel to or along a stream bed that is within that jurisdictional area; (5) discharges that result in the loss of greater than 1/10-acre of waters of the United States; (6) permanent access roads are constructed above grade in waters of the United States for a distance of more than 500 feet; or (7) permanent access roads are constructed in waters of the United States with impervious materials. (See general condition 31.) (Sections 10 and 404)

Note 1: Where the proposed utility line is constructed or installed in navigable waters of the United States (i.e., section 10 waters) within the coastal United States, the Great Lakes, and United States territories, copies of the pre-construction notification and NWP verification will be sent by the Corps to the National Oceanic and Atmospheric Administration (NOAA), National Ocean Service (NOS), for charting the utility line to protect navigation.

Note 2: Access roads used for both construction and maintenance may be authorized, provided they meet the terms and conditions of this NWP. Access roads used solely for construction of the utility line must be removed upon completion of the work, in accordance with the requirements for temporary fills.

Note 3: Pipes or pipelines used to transport gaseous, liquid, liquescent, or slurry substances over navigable waters of the United States are considered to be bridges, not utility lines, and may require a permit from the U.S. Coast Guard pursuant to Section 9 of the Rivers and Harbors Act of 1899. However, any discharges of dredged or fill material into waters of the United States associated with such pipelines will require a section 404 permit (see NWP 15).

Note 4: For overhead utility lines authorized by this NWP, a copy of the PCN and NWP verification will be provided to the Department of Defense Siting Clearinghouse, which will evaluate potential effects on military activities.

13. Bank Stabilization. Bank stabilization activities necessary for erosion prevention, provided the activity meets all of the following criteria:

- (a) No material is placed in excess of the minimum needed for erosion protection;
- (b) The activity is no more than 500 feet in length along the bank, unless the district engineer waives this criterion by making a written determination concluding that the discharge will result in minimal adverse effects;

(c) The activity will not exceed an average of one cubic yard per running foot placed along the bank below the plane of the ordinary high water mark or the high tide line, unless the district engineer waives this criterion by making a written determination concluding that the discharge will result in minimal adverse effects;

(d) The activity does not involve discharges of dredged or fill material into special aquatic sites, unless the district engineer waives this criterion by making a written determination concluding that the discharge will result in minimal adverse effects;

(e) No material is of a type, or is placed in any location, or in any manner, that will impair surface water flow into or out of any waters of the United States;

(f) No material is placed in a manner that will be eroded by normal or expected high flows (properly anchored trees and treetops may be used in low energy areas); and,

(g) The activity is not a stream channelization activity.

This NWP also authorizes temporary structures, fills, and work necessary to construct the bank stabilization activity. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

Invasive plant species shall not be used for bioengineering or vegetative bank stabilization.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if the bank stabilization activity: (1) involves discharges into special aquatic sites; or (2) is in excess of 500 feet in length; or (3) will involve the discharge of greater than an average of one cubic yard per running foot along the bank below the plane of the ordinary high water mark or the high tide line. (See general condition 31.) (Sections 10 and 404)

14. Linear Transportation Projects. Activities required for the construction, expansion, modification, or improvement of linear transportation projects (e.g., roads, highways, railways, trails, airport runways, and taxiways) in waters of the United States. For linear transportation projects in non-tidal waters, the discharge cannot cause the loss of greater than 1/2-acre of waters of the United States. For linear transportation projects in tidal waters, the discharge cannot cause the loss of greater than 1/3-acre of waters of the United States. Any stream channel modification, including bank stabilization, is limited to the minimum necessary to construct or protect the linear transportation project; such modifications must be in the immediate vicinity of the project.

This NWP also authorizes temporary structures, fills, and work necessary to construct the linear transportation project. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

This NWP cannot be used to authorize non-linear features commonly associated with transportation projects, such as vehicle maintenance or storage buildings, parking lots, train stations, or aircraft hangars.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) the loss of waters of the United States exceeds 1/10-acre; or (2) there is a discharge in a special aquatic site, including wetlands. (See general condition 31.) (Sections 10 and 404)

Note: Some discharges for the construction of farm roads or forest roads, or temporary roads for moving mining equipment, may qualify for an exemption under Section 404(f) of the Clean Water Act (see 33 CFR 323.4).

15. U.S. Coast Guard Approved Bridges. Discharges of dredged or fill material incidental to the construction of a bridge across navigable waters of the United States, including cofferdams, abutments, foundation seals, piers, and temporary construction and access fills, provided the construction of the bridge structure has been authorized by the U.S. Coast Guard under Section 9 of the Rivers and Harbors Act of 1899 or other applicable laws. Causeways and approach fills are not included in this NWP and will require a separate section 404 permit. (Section 404)

16. Return Water From Upland Contained Disposal Areas. Return water from an upland contained dredged material disposal area. The return water from a contained disposal area is administratively defined as a discharge of dredged material by 33 CFR 323.2(d), even though the disposal itself occurs in an area that has no waters of the United States and does not require a section 404 permit. This NWP satisfies the technical requirement for a section 404 permit for the return water where the quality of the return water is controlled by the state through the section 401 certification procedures. The dredging activity may require a section 404 permit (33 CFR 323.2(d)), and will require a section 10 permit if located in navigable waters of the United States. (Section 404)

17. Hydropower Projects. Discharges of dredged or fill material associated with hydropower projects having: (a) Less than 5000 kW of total generating capacity at existing reservoirs, where the project, including the fill, is licensed by the Federal Energy Regulatory Commission (FERC) under the Federal Power Act of 1920, as amended; or (b) a licensing exemption granted by the FERC pursuant to Section 408 of the Energy Security Act of 1980 (16 U.S.C. 2705 and 2708) and Section 30 of the Federal Power Act, as amended.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 31.) (Section 404)

18. Minor Discharges. Minor discharges of dredged or fill material into all waters of the United States, provided the activity meets all of the following criteria:

- (a) The quantity of discharged material and the volume of area excavated do not exceed 25 cubic yards below the plane of the ordinary high water mark or the high tide line;
- (b) The discharge will not cause the loss of more than 1/10-acre of waters of the United States; and
- (c) The discharge is not placed for the purpose of a stream diversion.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) The discharge or the volume of area excavated exceeds 10 cubic yards below the plane of the ordinary high water mark or the high tide line, or (2) the discharge is in a special aquatic site, including wetlands. (See general condition 31.) (Sections 10 and 404)

19. Minor Dredging. Dredging of no more than 25 cubic yards below the plane of the ordinary high water mark or the mean high water mark from navigable waters of the United States (i.e., section 10 waters). This NWP does not authorize the dredging or degradation through siltation of coral reefs, sites that support submerged aquatic vegetation (including sites where submerged aquatic vegetation is documented to exist but may not be present in a given year), anadromous fish spawning areas, or wetlands, or the connection of canals or other artificial waterways to navigable waters of the United States (see 33 CFR 322.5(g)). (Sections 10 and 404)

20. Response Operations for Oil and Hazardous Substances. Activities conducted in response to a discharge or release of oil and hazardous substances that are subject to the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR part 300) including containment, cleanup, and mitigation efforts, provided that the activities are done under either: (1) the Spill Control and Countermeasure Plan required by 40 CFR 112.3; (2) the direction or oversight of the federal on-scene coordinator designated by 40 CFR part 300; or (3) any approved existing state, regional or local contingency plan provided that the Regional Response Team (if one exists in the area) concurs with the proposed response efforts. This NWP also authorizes activities required for the cleanup of oil releases in waters of the United States from electrical equipment that are governed by EPA's polychlorinated biphenyl spill response regulations at 40 CFR part 761. This NWP also authorizes the use of temporary structures and fills in waters of the U.S. for spill response training exercises. (Sections 10 and 404)

21. Surface Coal Mining Activities. Discharges of dredged or fill material into waters of the United States associated with surface coal mining and reclamation operations.

(a) Previously Authorized Surface Coal Mining Activities. Surface coal mining activities that were previously authorized by the NWP 21 issued on March 12, 2007 (see 72 FR 11092), are authorized by this NWP, provided the following criteria are met:

(1) The activities are already authorized, or are currently being processed by states with approved programs under Title V of the Surface Mining Control and Reclamation Act of 1977 or as part of an integrated permit processing procedure by the Department of Interior, Office of Surface Mining Reclamation and Enforcement;

(2) The permittee must submit a letter to the district engineer requesting re-verification of the NWP 21 authorization. The letter must describe any changes from the previous NWP 21 verification. The letter must be submitted to the district engineer by February 1, 2013;

(3) The loss of waters of the United States is not greater than the loss of waters of the United States previously verified by the district engineer under the NWP 21 issued on March 12, 2007 (i.e., there are no proposed expansions of surface coal mining activities in waters of the United States);

(4) The district engineer provides written verification that those activities will result in minimal individual and cumulative adverse effects and are authorized by NWP 21, including

currently applicable regional conditions and any activity-specific conditions added to the NWP authorization by the district engineer, such as compensatory mitigation requirements; and

(5) If the permittee does not receive a written verification from the district engineer prior to March 18, 2013, the permittee must cease all activities until such verification is received. The district engineer may extend the February 1, 2013, deadline by so notifying the permittee in writing, but the permittee must still cease all activities if he or she has not received written verification from the Corps by March 18, 2013, until such verification is received.

(b) Other Surface Coal Mining Activities. Surface coal mining activities that were not previously authorized by the NWP 21 issued on March 12, 2007, are authorized by this NWP, provided the following criteria are met:

(1) The activities are already authorized, or are currently being processed by states with approved programs under Title V of the Surface Mining Control and Reclamation Act of 1977 or as part of an integrated permit processing procedure by the Department of Interior, Office of Surface Mining Reclamation and Enforcement;

(2) The discharge must not cause the loss of greater than 1/2-acre of non-tidal waters of the United States, including the loss of no more than 300 linear feet of stream bed, unless for intermittent and ephemeral stream beds the district engineer waives the 300 linear foot limit by making a written determination concluding that the discharge will result in minimal individual and cumulative adverse effects. This NWP does not authorize discharges into tidal waters or non-tidal wetlands adjacent to tidal waters; and

(3) The discharge is not associated with the construction of valley fills. A “valley fill” is a fill structure that is typically constructed within valleys associated with steep, mountainous terrain, associated with surface coal mining activities.

Notification: For activities under paragraph (b) of this NWP, the permittee must submit a pre-construction notification to the district engineer and receive written authorization prior to commencing the activity. (See general condition 31.) (Sections 10 and 404)

22. Removal of Vessels. Temporary structures or minor discharges of dredged or fill material required for the removal of wrecked, abandoned, or disabled vessels, or the removal of man-made obstructions to navigation. This NWP does not authorize maintenance dredging, shoal removal, or riverbank snagging.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) The vessel is listed or eligible for listing in the National Register of Historic Places; or (2) the activity is conducted in a special aquatic site, including coral reefs and wetlands. (See general condition 31.) If condition 1 above is triggered, the permittee cannot commence the activity until informed by the district engineer that compliance with the “Historic Properties” general condition is completed. (Sections 10 and 404)

Note 1: If a removed vessel is disposed of in waters of the United States, a permit from the U.S. EPA may be required (see 40 CFR 229.3). If a Department of the Army permit is required for vessel disposal in waters of the United States, separate authorization will be required.

Note 2: Compliance with general condition 18, Endangered Species, and general condition 20, Historic Properties, is required for all NWPs. The concern with historic properties is emphasized in the notification requirements for this NWP because of the likelihood that submerged vessels may be historic properties.

23. Approved Categorical Exclusions. Activities undertaken, assisted, authorized, regulated, funded, or financed, in whole or in part, by another Federal agency or department where:

(a) That agency or department has determined, pursuant to the Council on Environmental Quality's implementing regulations for the National Environmental Policy Act (40 CFR part 1500 et seq.), that the activity is categorically excluded from environmental documentation, because it is included within a category of actions which neither individually nor cumulatively have a significant effect on the human environment; and

(b) The Office of the Chief of Engineers (Attn: CECW-CO) has concurred with that agency's or department's determination that the activity is categorically excluded and approved the activity for authorization under NWP 23.

The Office of the Chief of Engineers may require additional conditions, including pre-construction notification, for authorization of an agency's categorical exclusions under this NWP.

Notification: Certain categorical exclusions approved for authorization under this NWP require the permittee to submit a pre-construction notification to the district engineer prior to commencing the activity (see general condition 31). The activities that require pre-construction notification are listed in the appropriate Regulatory Guidance Letters. (Sections 10 and 404)

Note: The agency or department may submit an application for an activity believed to be categorically excluded to the Office of the Chief of Engineers (Attn: CECW-CO). Prior to approval for authorization under this NWP of any agency's activity, the Office of the Chief of Engineers will solicit public comment. As of the date of issuance of this NWP, agencies with approved categorical exclusions are the: Bureau of Reclamation, Federal Highway Administration, and U.S. Coast Guard. Activities approved for authorization under this NWP as of the date of this notice are found in Corps Regulatory Guidance Letter 05-07, which is available at:

<http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/GuidanceLetters.aspx> . Any future approved categorical exclusions will be announced in Regulatory Guidance Letters and posted on this same web site.

24. Indian Tribe or State Administered Section 404 Programs. Any activity permitted by a state or Indian Tribe administering its own section 404 permit program pursuant to 33 U.S.C. 1344(g)-(l) is permitted pursuant to Section 10 of the Rivers and Harbors Act of 1899. (Section 10)

Note 1: As of the date of the promulgation of this NWP, only New Jersey and Michigan administer their own section 404 permit programs.

Note 2: Those activities that do not involve an Indian Tribe or State section 404 permit are not included in this NWP, but certain structures will be exempted by Section 154 of Pub. L. 94-587, 90 Stat. 2917 (33 U.S.C. 591) (see 33 CFR 322.4(b)).

25. Structural Discharges. Discharges of material such as concrete, sand, rock, etc., into tightly sealed forms or cells where the material will be used as a structural member for standard pile supported structures, such as bridges, transmission line footings, and walkways, or for general navigation, such as mooring cells, including the excavation of bottom material from within the form prior to the discharge of concrete, sand, rock, etc. This NWP does not authorize filled structural members that would support buildings, building pads, homes, house pads,

parking areas, storage areas and other such structures. The structure itself may require a separate section 10 permit if located in navigable waters of the United States. (Section 404)

26. [Reserved]

27. Aquatic Habitat Restoration, Establishment, and Enhancement Activities. Activities in waters of the United States associated with the restoration, enhancement, and establishment of tidal and non-tidal wetlands and riparian areas, the restoration and enhancement of non-tidal streams and other non-tidal open waters, and the rehabilitation or enhancement of tidal streams, tidal wetlands, and tidal open waters, provided those activities result in net increases in aquatic resource functions and services.

To the extent that a Corps permit is required, activities authorized by this NWP include, but are not limited to: the removal of accumulated sediments; the installation, removal, and maintenance of small water control structures, dikes, and berms, as well as discharges of dredged or fill material to restore appropriate stream channel configurations after small water control structures, dikes, and berms, are removed; the installation of current deflectors; the enhancement, restoration, or establishment of riffle and pool stream structure; the placement of in-stream habitat structures; modifications of the stream bed and/or banks to restore or establish stream meanders; the backfilling of artificial channels; the removal of existing drainage structures, such as drain tiles, and the filling, blocking, or reshaping of drainage ditches to restore wetland hydrology; the installation of structures or fills necessary to establish or re-establish wetland or stream hydrology; the construction of small nesting islands; the construction of open water areas; the construction of oyster habitat over unvegetated bottom in tidal waters; shellfish seeding; activities needed to reestablish vegetation, including plowing or disking for seed bed preparation and the planting of appropriate wetland species; re-establishment of submerged aquatic vegetation in areas where those plant communities previously existed; re-establishment of tidal wetlands in tidal waters where those wetlands previously existed; mechanized land clearing to remove non-native invasive, exotic, or nuisance vegetation; and other related activities. Only native plant species should be planted at the site.

This NWP authorizes the relocation of non-tidal waters, including non-tidal wetlands and streams, on the project site provided there are net increases in aquatic resource functions and services.

Except for the relocation of non-tidal waters on the project site, this NWP does not authorize the conversion of a stream or natural wetlands to another aquatic habitat type (e.g., stream to wetland or vice versa) or uplands. Changes in wetland plant communities that occur when wetland hydrology is more fully restored during wetland rehabilitation activities are not considered a conversion to another aquatic habitat type. This NWP does not authorize stream channelization. This NWP does not authorize the relocation of tidal waters or the conversion of tidal waters, including tidal wetlands, to other aquatic uses, such as the conversion of tidal wetlands into open water impoundments.

Compensatory mitigation is not required for activities authorized by this NWP since these activities must result in net increases in aquatic resource functions and services.

Reversion. For enhancement, restoration, and establishment activities conducted: (1) In accordance with the terms and conditions of a binding stream or wetland enhancement or restoration agreement, or a wetland establishment agreement, between the landowner and the U.S. Fish and Wildlife Service (FWS), the Natural Resources Conservation Service (NRCS), the

Farm Service Agency (FSA), the National Marine Fisheries Service (NMFS), the National Ocean Service (NOS), U.S. Forest Service (USFS), or their designated state cooperating agencies; (2) as voluntary wetland restoration, enhancement, and establishment actions documented by the NRCS or USDA Technical Service Provider pursuant to NRCS Field Office Technical Guide standards; or (3) on reclaimed surface coal mine lands, in accordance with a Surface Mining Control and Reclamation Act permit issued by the Office of Surface Mining Reclamation and Enforcement (OSMRE) or the applicable state agency, this NWP also authorizes any future discharge of dredged or fill material associated with the reversion of the area to its documented prior condition and use (i.e., prior to the restoration, enhancement, or establishment activities). The reversion must occur within five years after expiration of a limited term wetland restoration or establishment agreement or permit, and is authorized in these circumstances even if the discharge occurs after this NWP expires. The five-year reversion limit does not apply to agreements without time limits reached between the landowner and the FWS, NRCS, FSA, NMFS, NOS, USFS, or an appropriate state cooperating agency. This NWP also authorizes discharges of dredged or fill material in waters of the United States for the reversion of wetlands that were restored, enhanced, or established on prior-converted cropland or on uplands, in accordance with a binding agreement between the landowner and NRCS, FSA, FWS, or their designated state cooperating agencies (even though the restoration, enhancement, or establishment activity did not require a section 404 permit). The prior condition will be documented in the original agreement or permit, and the determination of return to prior conditions will be made by the Federal agency or appropriate state agency executing the agreement or permit. Before conducting any reversion activity the permittee or the appropriate Federal or state agency must notify the district engineer and include the documentation of the prior condition. Once an area has reverted to its prior physical condition, it will be subject to whatever the Corps Regulatory requirements are applicable to that type of land at the time. The requirement that the activity results in a net increase in aquatic resource functions and services does not apply to reversion activities meeting the above conditions. Except for the activities described above, this NWP does not authorize any future discharge of dredged or fill material associated with the reversion of the area to its prior condition. In such cases a separate permit would be required for any reversion.

Reporting. For those activities that do not require pre-construction notification, the permittee must submit to the district engineer a copy of: (1) The binding stream enhancement or restoration agreement or wetland enhancement, restoration, or establishment agreement, or a project description, including project plans and location map; (2) the NRCS or USDA Technical Service Provider documentation for the voluntary stream enhancement or restoration action or wetland restoration, enhancement, or establishment action; or (3) the SMCRA permit issued by OSMRE or the applicable state agency. The report must also include information on baseline ecological conditions on the project site, such as a delineation of wetlands, streams, and/or other aquatic habitats. These documents must be submitted to the district engineer at least 30 days prior to commencing activities in waters of the United States authorized by this NWP.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing any activity (see general condition 31), except for the following activities:

(1) Activities conducted on non-Federal public lands and private lands, in accordance with the terms and conditions of a binding stream enhancement or restoration agreement or

wetland enhancement, restoration, or establishment agreement between the landowner and the U.S. FWS, NRCS, FSA, NMFS, NOS, USFS or their designated state cooperating agencies;

(2) Voluntary stream or wetland restoration or enhancement action, or wetland establishment action, documented by the NRCS or USDA Technical Service Provider pursuant to NRCS Field Office Technical Guide standards; or

(3) The reclamation of surface coal mine lands, in accordance with an SMCRA permit issued by the OSMRE or the applicable state agency.

However, the permittee must submit a copy of the appropriate documentation to the district engineer to fulfill the reporting requirement. (Sections 10 and 404)

Note: This NWP can be used to authorize compensatory mitigation projects, including mitigation banks and in-lieu fee projects. However, this NWP does not authorize the reversion of an area used for a compensatory mitigation project to its prior condition, since compensatory mitigation is generally intended to be permanent.

28. Modifications of Existing Marinas. Reconfiguration of existing docking facilities within an authorized marina area. No dredging, additional slips, dock spaces, or expansion of any kind within waters of the United States is authorized by this NWP. (Section 10)

29. Residential Developments. Discharges of dredged or fill material into non-tidal waters of the United States for the construction or expansion of a single residence, a multiple unit residential development, or a residential subdivision. This NWP authorizes the construction of building foundations and building pads and attendant features that are necessary for the use of the residence or residential development. Attendant features may include but are not limited to roads, parking lots, garages, yards, utility lines, storm water management facilities, septic fields, and recreation facilities such as playgrounds, playing fields, and golf courses (provided the golf course is an integral part of the residential development).

The discharge must not cause the loss of greater than 1/2-acre of non-tidal waters of the United States, including the loss of no more than 300 linear feet of stream bed, unless for intermittent and ephemeral stream beds the district engineer waives the 300 linear foot limit by making a written determination concluding that the discharge will result in minimal adverse effects. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters.

Subdivisions: For residential subdivisions, the aggregate total loss of waters of United States authorized by this NWP cannot exceed 1/2-acre. This includes any loss of waters of the United States associated with development of individual subdivision lots.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 31.) (Sections 10 and 404)

30. Moist Soil Management for Wildlife. Discharges of dredged or fill material into non-tidal waters of the United States and maintenance activities that are associated with moist soil management for wildlife for the purpose of continuing ongoing, site-specific, wildlife management activities where soil manipulation is used to manage habitat and feeding areas for wildlife. Such activities include, but are not limited to, plowing or discing to impede succession, preparing seed beds, or establishing fire breaks. Sufficient riparian areas must be maintained adjacent to all open water bodies, including streams, to preclude water quality degradation due to erosion and sedimentation. This NWP does not authorize the construction of new dikes, roads, water control structures, or similar features associated with the management areas. The activity

must not result in a net loss of aquatic resource functions and services. This NWP does not authorize the conversion of wetlands to uplands, impoundments, or other open water bodies. (Section 404)

Note: The repair, maintenance, or replacement of existing water control structures or the repair or maintenance of dikes may be authorized by NWP 3. Some such activities may qualify for an exemption under Section 404(f) of the Clean Water Act (see 33 CFR 323.4).

31. Maintenance of Existing Flood Control Facilities. Discharges of dredged or fill material resulting from activities associated with the maintenance of existing flood control facilities, including debris basins, retention/detention basins, levees, and channels that: (i) were previously authorized by the Corps by individual permit, general permit, or 33 CFR 330.3, or did not require a permit at the time they were constructed, or (ii) were constructed by the Corps and transferred to a non-Federal sponsor for operation and maintenance. Activities authorized by this NWP are limited to those resulting from maintenance activities that are conducted within the “maintenance baseline,” as described in the definition below. Discharges of dredged or fill materials associated with maintenance activities in flood control facilities in any watercourse that have previously been determined to be within the maintenance baseline are authorized under this NWP. To the extent that a Corps permit is required, this NWP authorizes the removal of vegetation from levees associated with the flood control project. This NWP does not authorize the removal of sediment and associated vegetation from natural water courses except when these activities have been included in the maintenance baseline. All dredged material must be placed in an area that has no waters of the United States or a separately authorized disposal site in waters of the United States, and proper siltation controls must be used.

Maintenance Baseline: The maintenance baseline is a description of the physical characteristics (e.g., depth, width, length, location, configuration, or design flood capacity, etc.) of a flood control project within which maintenance activities are normally authorized by NWP 31, subject to any case-specific conditions required by the district engineer. The district engineer will approve the maintenance baseline based on the approved or constructed capacity of the flood control facility, whichever is smaller, including any areas where there are no constructed channels but which are part of the facility. The prospective permittee will provide documentation of the physical characteristics of the flood control facility (which will normally consist of as-built or approved drawings) and documentation of the approved and constructed design capacities of the flood control facility. If no evidence of the constructed capacity exists, the approved capacity will be used. The documentation will also include best management practices to ensure that the impacts to the aquatic environment are minimal, especially in maintenance areas where there are no constructed channels. (The Corps may request maintenance records in areas where there has not been recent maintenance.) Revocation or modification of the final determination of the maintenance baseline can only be done in accordance with 33 CFR 330.5. Except in emergencies as described below, this NWP cannot be used until the district engineer approves the maintenance baseline and determines the need for mitigation and any regional or activity-specific conditions. Once determined, the maintenance baseline will remain valid for any subsequent reissuance of this NWP. This NWP does not authorize maintenance of a flood control facility that has been abandoned. A flood control facility will be considered abandoned if it has operated at a significantly reduced capacity without needed maintenance being accomplished in a timely manner.

Mitigation: The district engineer will determine any required mitigation one-time only for impacts associated with maintenance work at the same time that the maintenance baseline is approved. Such one-time mitigation will be required when necessary to ensure that adverse environmental impacts are no more than minimal, both individually and cumulatively. Such mitigation will only be required once for any specific reach of a flood control project. However, if one-time mitigation is required for impacts associated with maintenance activities, the district engineer will not delay needed maintenance, provided the district engineer and the permittee establish a schedule for identification, approval, development, construction and completion of any such required mitigation. Once the one-time mitigation described above has been completed, or a determination made that mitigation is not required, no further mitigation will be required for maintenance activities within the maintenance baseline. In determining appropriate mitigation, the district engineer will give special consideration to natural water courses that have been included in the maintenance baseline and require compensatory mitigation and/or best management practices as appropriate.

Emergency Situations: In emergency situations, this NWP may be used to authorize maintenance activities in flood control facilities for which no maintenance baseline has been approved. Emergency situations are those which would result in an unacceptable hazard to life, a significant loss of property, or an immediate, unforeseen, and significant economic hardship if action is not taken before a maintenance baseline can be approved. In such situations, the determination of mitigation requirements, if any, may be deferred until the emergency has been resolved. Once the emergency has ended, a maintenance baseline must be established expeditiously, and mitigation, including mitigation for maintenance conducted during the emergency, must be required as appropriate.

Notification: The permittee must submit a pre-construction notification to the district engineer before any maintenance work is conducted (see general condition 31). The pre-construction notification may be for activity-specific maintenance or for maintenance of the entire flood control facility by submitting a five-year (or less) maintenance plan. The pre-construction notification must include a description of the maintenance baseline and the dredged material disposal site. (Sections 10 and 404)

32. Completed Enforcement Actions. Any structure, work, or discharge of dredged or fill material remaining in place or undertaken for mitigation, restoration, or environmental benefit in compliance with either:

(i) The terms of a final written Corps non-judicial settlement agreement resolving a violation of Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act of 1899; or the terms of an EPA 309(a) order on consent resolving a violation of Section 404 of the Clean Water Act, provided that:

(a) The unauthorized activity affected no more than 5 acres of non-tidal waters or 1 acre of tidal waters;

(b) The settlement agreement provides for environmental benefits, to an equal or greater degree, than the environmental detriments caused by the unauthorized activity that is authorized by this NWP; and

(c) The district engineer issues a verification letter authorizing the activity subject to the terms and conditions of this NWP and the settlement agreement, including a specified completion date; or

(ii) The terms of a final Federal court decision, consent decree, or settlement agreement resulting from an enforcement action brought by the United States under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act of 1899; or

(iii) The terms of a final court decision, consent decree, settlement agreement, or non-judicial settlement agreement resulting from a natural resource damage claim brought by a trustee or trustees for natural resources (as defined by the National Contingency Plan at 40 CFR subpart G) under Section 311 of the Clean Water Act, Section 107 of the Comprehensive Environmental Response, Compensation and Liability Act, Section 312 of the National Marine Sanctuaries Act, Section 1002 of the Oil Pollution Act of 1990, or the Park System Resource Protection Act at 16 U.S.C. 19jj, to the extent that a Corps permit is required.

Compliance is a condition of the NWP itself. Any authorization under this NWP is automatically revoked if the permittee does not comply with the terms of this NWP or the terms of the court decision, consent decree, or judicial/non-judicial settlement agreement. This NWP does not apply to any activities occurring after the date of the decision, decree, or agreement that are not for the purpose of mitigation, restoration, or environmental benefit. Before reaching any settlement agreement, the Corps will ensure compliance with the provisions of 33 CFR part 326 and 33 CFR 330.6(d)(2) and (e). (Sections 10 and 404)

33. Temporary Construction, Access, and Dewatering. Temporary structures, work, and discharges, including cofferdams, necessary for construction activities or access fills or dewatering of construction sites, provided that the associated primary activity is authorized by the Corps of Engineers or the U.S. Coast Guard. This NWP also authorizes temporary structures, work, and discharges, including cofferdams, necessary for construction activities not otherwise subject to the Corps or U.S. Coast Guard permit requirements. Appropriate measures must be taken to maintain near normal downstream flows and to minimize flooding. Fill must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. The use of dredged material may be allowed if the district engineer determines that it will not cause more than minimal adverse effects on aquatic resources. Following completion of construction, temporary fill must be entirely removed to an area that has no waters of the United States, dredged material must be returned to its original location, and the affected areas must be restored to pre-construction elevations. The affected areas must also be revegetated, as appropriate. This permit does not authorize the use of cofferdams to dewater wetlands or other aquatic areas to change their use. Structures left in place after construction is completed require a separate section 10 permit if located in navigable waters of the United States. (See 33 CFR part 322.)

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity (see general condition 31). The pre-construction notification must include a restoration plan showing how all temporary fills and structures will be removed and the area restored to pre-project conditions. (Sections 10 and 404)

34. Cranberry Production Activities. Discharges of dredged or fill material for dikes, berms, pumps, water control structures or leveling of cranberry beds associated with expansion, enhancement, or modification activities at existing cranberry production operations. The cumulative total acreage of disturbance per cranberry production operation, including but not limited to, filling, flooding, ditching, or clearing, must not exceed 10 acres of waters of the United States, including wetlands. The activity must not result in a net loss of wetland acreage. This NWP does not authorize any discharge of dredged or fill material related to other cranberry

production activities such as warehouses, processing facilities, or parking areas. For the purposes of this NWP, the cumulative total of 10 acres will be measured over the period that this NWP is valid.

Notification: The permittee must submit a pre-construction notification to the district engineer once during the period that this NWP is valid, and the NWP will then authorize discharges of dredge or fill material at an existing operation for the permit term, provided the 10-acre limit is not exceeded. (See general condition 31.) (Section 404)

35. Maintenance Dredging of Existing Basins. Excavation and removal of accumulated sediment for maintenance of existing marina basins, access channels to marinas or boat slips, and boat slips to previously authorized depths or controlling depths for ingress/egress, whichever is less, provided the dredged material is deposited at an area that has no waters of the United States site and proper siltation controls are used. (Section 10)

36. Boat Ramps. Activities required for the construction of boat ramps, provided the activity meets all of the following criteria:

(a) The discharge into waters of the United States does not exceed 50 cubic yards of concrete, rock, crushed stone or gravel into forms, or in the form of pre-cast concrete planks or slabs, unless the district engineer waives the 50 cubic yard limit by making a written determination concluding that the discharge will result in minimal adverse effects;

(b) The boat ramp does not exceed 20 feet in width, unless the district engineer waives this criterion by making a written determination concluding that the discharge will result in minimal adverse effects;

(c) The base material is crushed stone, gravel or other suitable material;

(d) The excavation is limited to the area necessary for site preparation and all excavated material is removed to an area that has no waters of the United States; and,

(e) No material is placed in special aquatic sites, including wetlands.

The use of unsuitable material that is structurally unstable is not authorized. If dredging in navigable waters of the United States is necessary to provide access to the boat ramp, the dredging must be authorized by another NWP, a regional general permit, or an individual permit.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity if: (1) The discharge into waters of the United States exceeds 50 cubic yards, or (2) the boat ramp exceeds 20 feet in width. (See general condition 31.) (Sections 10 and 404)

37. Emergency Watershed Protection and Rehabilitation. Work done by or funded by:

(a) The Natural Resources Conservation Service for a situation requiring immediate action under its emergency Watershed Protection Program (7 CFR part 624);

(b) The U.S. Forest Service under its Burned-Area Emergency Rehabilitation Handbook (FSH 2509.13);

(c) The Department of the Interior for wildland fire management burned area emergency stabilization and rehabilitation (DOI Manual part 620, Ch. 3);

(d) The Office of Surface Mining, or states with approved programs, for abandoned mine land reclamation activities under Title IV of the Surface Mining Control and Reclamation Act (30 CFR Subchapter R), where the activity does not involve coal extraction; or

(e) The Farm Service Agency under its Emergency Conservation Program (7 CFR part 701).

In general, the prospective permittee should wait until the district engineer issues an NWP verification or 45 calendar days have passed before proceeding with the watershed protection and rehabilitation activity. However, in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur, the emergency watershed protection and rehabilitation activity may proceed immediately and the district engineer will consider the information in the pre-construction notification and any comments received as a result of agency coordination to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

Notification: Except in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur, the permittee must submit a pre-construction notification to the district engineer prior to commencing the activity (see general condition 31). (Sections 10 and 404)

38. Cleanup of Hazardous and Toxic Waste. Specific activities required to effect the containment, stabilization, or removal of hazardous or toxic waste materials that are performed, ordered, or sponsored by a government agency with established legal or regulatory authority. Court ordered remedial action plans or related settlements are also authorized by this NWP. This NWP does not authorize the establishment of new disposal sites or the expansion of existing sites used for the disposal of hazardous or toxic waste.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 31.) (Sections 10 and 404)

Note: Activities undertaken entirely on a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site by authority of CERCLA as approved or required by EPA, are not required to obtain permits under Section 404 of the Clean Water Act or Section 10 of the Rivers and Harbors Act.

39. Commercial and Institutional Developments. Discharges of dredged or fill material into non-tidal waters of the United States for the construction or expansion of commercial and institutional building foundations and building pads and attendant features that are necessary for the use and maintenance of the structures. Attendant features may include, but are not limited to, roads, parking lots, garages, yards, utility lines, storm water management facilities, and recreation facilities such as playgrounds and playing fields. Examples of commercial developments include retail stores, industrial facilities, restaurants, business parks, and shopping centers. Examples of institutional developments include schools, fire stations, government office buildings, judicial buildings, public works buildings, libraries, hospitals, and places of worship. The construction of new golf courses and new ski areas is not authorized by this NWP.

The discharge must not cause the loss of greater than 1/2-acre of non-tidal waters of the United States, including the loss of no more than 300 linear feet of stream bed, unless for intermittent and ephemeral stream beds the district engineer waives the 300 linear foot limit by making a written determination concluding that the discharge will result in minimal adverse effects. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 31.) (Sections 10 and 404)

Note: For any activity that involves the construction of a wind energy generating structure, solar tower, or overhead transmission line, a copy of the PCN and NWP verification will be provided to the Department of Defense Siting Clearinghouse, which will evaluate potential effects on military activities.

40. Agricultural Activities. Discharges of dredged or fill material into non-tidal waters of the United States for agricultural activities, including the construction of building pads for farm buildings. Authorized activities include the installation, placement, or construction of drainage tiles, ditches, or levees; mechanized land clearing; land leveling; the relocation of existing serviceable drainage ditches constructed in waters of the United States; and similar activities.

This NWP also authorizes the construction of farm ponds in non-tidal waters of the United States, excluding perennial streams, provided the farm pond is used solely for agricultural purposes. This NWP does not authorize the construction of aquaculture ponds.

This NWP also authorizes discharges of dredged or fill material into non-tidal waters of the United States to relocate existing serviceable drainage ditches constructed in non-tidal streams.

The discharge must not cause the loss of greater than 1/2-acre of non-tidal waters of the United States, including the loss of no more than 300 linear feet of stream bed, unless for intermittent and ephemeral stream beds the district engineer waives the 300 linear foot limit by making a written determination concluding that the discharge will result in minimal adverse effects. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 31.) (Section 404)

Note: Some discharges for agricultural activities may qualify for an exemption under Section 404(f) of the Clean Water Act (see 33 CFR 323.4). This NWP authorizes the construction of farm ponds that do not qualify for the Clean Water Act Section 404(f)(1)(C) exemption because of the recapture provision at Section 404(f)(2).

41. Reshaping Existing Drainage Ditches. Discharges of dredged or fill material into non-tidal waters of the United States, excluding non-tidal wetlands adjacent to tidal waters, to modify the cross-sectional configuration of currently serviceable drainage ditches constructed in waters of the United States, for the purpose of improving water quality by regrading the drainage ditch with gentler slopes, which can reduce erosion, increase growth of vegetation, and increase uptake of nutrients and other substances by vegetation. The reshaping of the ditch cannot increase drainage capacity beyond the original as-built capacity nor can it expand the area drained by the ditch as originally constructed (i.e., the capacity of the ditch must be the same as originally constructed and it cannot drain additional wetlands or other waters of the United States). Compensatory mitigation is not required because the work is designed to improve water quality.

This NWP does not authorize the relocation of drainage ditches constructed in waters of the United States; the location of the centerline of the reshaped drainage ditch must be approximately the same as the location of the centerline of the original drainage ditch. This NWP does not authorize stream channelization or stream relocation projects.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity, if more than 500 linear feet of drainage ditch will be reshaped. (See general condition 31.) (Section 404)

42. Recreational Facilities. Discharges of dredged or fill material into non-tidal waters of the United States for the construction or expansion of recreational facilities. Examples of recreational facilities that may be authorized by this NWP include playing fields (e.g., football fields, baseball fields), basketball courts, tennis courts, hiking trails, bike paths, golf courses, ski areas, horse paths, nature centers, and campgrounds (excluding recreational vehicle parks). This NWP also authorizes the construction or expansion of small support facilities, such as maintenance and storage buildings and stables that are directly related to the recreational activity, but it does not authorize the construction of hotels, restaurants, racetracks, stadiums, arenas, or similar facilities.

The discharge must not cause the loss of greater than 1/2-acre of non-tidal waters of the United States, including the loss of no more than 300 linear feet of stream bed, unless for intermittent and ephemeral stream beds the district engineer waives the 300 linear foot limit by making a written determination concluding that the discharge will result in minimal adverse effects. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 31.) (Section 404)

43. Stormwater Management Facilities. Discharges of dredged or fill material into non-tidal waters of the United States for the construction of stormwater management facilities, including stormwater detention basins and retention basins and other stormwater management facilities; the construction of water control structures, outfall structures and emergency spillways; and the construction of low impact development integrated management features such as bioretention facilities (e.g., rain gardens), vegetated filter strips, grassed swales, and infiltration trenches. This NWP also authorizes, to the extent that a section 404 permit is required, discharges of dredged or fill material into non-tidal waters of the United States for the maintenance of stormwater management facilities. Note that stormwater management facilities that are determined to be waste treatment systems under 33 CFR 328.3(a)(8) are not waters of the United States, and maintenance of these waste treatment systems generally does not require a section 404 permit.

The discharge must not cause the loss of greater than 1/2-acre of non-tidal waters of the United States, including the loss of no more than 300 linear feet of stream bed, unless for intermittent and ephemeral stream beds the district engineer waives the 300 linear foot limit by making a written determination concluding that the discharge will result in minimal adverse effects. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters. This NWP does not authorize discharges of dredged or fill material for the construction of new stormwater management facilities in perennial streams.

Notification: For the construction of new stormwater management facilities, or the expansion of existing stormwater management facilities, the permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 31.) Maintenance activities do not require pre-construction notification if they are limited to restoring the original design capacities of the stormwater management facility. (Section 404)

44. Mining Activities. Discharges of dredged or fill material into non-tidal waters of the United States for mining activities, except for coal mining activities. The discharge must not cause the loss of greater than 1/2-acre of non-tidal waters of the United States, including the loss

of no more than 300 linear feet of stream bed, unless for intermittent and ephemeral stream beds the district engineer waives the 300 linear foot limit by making a written determination concluding that the discharge will result in minimal adverse effects. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 31.) If reclamation is required by other statutes, then a copy of the reclamation plan must be submitted with the pre-construction notification. (Sections 10 and 404)

45. Repair of Uplands Damaged by Discrete Events. This NWP authorizes discharges of dredged or fill material, including dredging or excavation, into all waters of the United States for activities associated with the restoration of upland areas damaged by storms, floods, or other discrete events. This NWP authorizes bank stabilization to protect the restored uplands. The restoration of the damaged areas, including any bank stabilization, must not exceed the contours, or ordinary high water mark, that existed before the damage occurred. The district engineer retains the right to determine the extent of the pre-existing conditions and the extent of any restoration work authorized by this NWP. The work must commence, or be under contract to commence, within two years of the date of damage, unless this condition is waived in writing by the district engineer. This NWP cannot be used to reclaim lands lost to normal erosion processes over an extended period.

This NWP does not authorize beach restoration or nourishment.

Minor dredging is limited to the amount necessary to restore the damaged upland area and should not significantly alter the pre-existing bottom contours of the waterbody.

Notification: The permittee must submit a pre-construction notification to the district engineer (see general condition 31) within 12-months of the date of the damage. The pre-construction notification should include documentation, such as a recent topographic survey or photographs, to justify the extent of the proposed restoration. (Sections 10 and 404)

Note: The uplands themselves that are lost as a result of a storm, flood, or other discrete event can be replaced without a section 404 permit, if the uplands are restored to the ordinary high water mark (in non-tidal waters) or high tide line (in tidal waters). (See also 33 CFR 328.5.) This NWP authorizes discharges of dredged or fill material into waters of the United States associated with the restoration of uplands.

46. Discharges in Ditches. Discharges of dredged or fill material into non-tidal ditches that are: (1) constructed in uplands, (2) receive water from an area determined to be a water of the United States prior to the construction of the ditch, (3) divert water to an area determined to be a water of the United States prior to the construction of the ditch, and (4) are determined to be waters of the United States. The discharge must not cause the loss of greater than one acre of waters of the United States.

This NWP does not authorize discharges of dredged or fill material into ditches constructed in streams or other waters of the United States, or in streams that have been relocated in uplands. This NWP does not authorize discharges of dredged or fill material that increase the capacity of the ditch and drain those areas determined to be waters of the United States prior to construction of the ditch.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 31.) (Section 404)

47. [Reserved]

48. Commercial Shellfish Aquaculture Activities. Discharges of dredged or fill material in waters of the United States or structures or work in navigable waters of the United States necessary for commercial shellfish aquaculture operations in authorized project areas. For the purposes of this NWP, the project area is the area in which the operator is currently authorized to conduct commercial shellfish aquaculture activities, as identified through a lease or permit issued by an appropriate state or local government agency, a treaty, or any other easement, lease, deed, or contract which establishes an enforceable property interest for the operator. This NWP authorizes the installation of buoys, floats, racks, trays, nets, lines, tubes, containers, and other structures into navigable waters of the United States. This NWP also authorizes discharges of dredged or fill material into waters of the United States necessary for shellfish seeding, rearing, cultivating, transplanting, and harvesting activities. Rafts and other floating structures must be securely anchored and clearly marked. This NWP does not authorize:

(a) The cultivation of a nonindigenous species unless that species has been previously cultivated in the waterbody;

(b) The cultivation of an aquatic nuisance species as defined in the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990; or,

(c) Attendant features such as docks, piers, boat ramps, stockpiles, or staging areas, or the deposition of shell material back into waters of the United States as waste.

This NWP also authorizes commercial shellfish aquaculture activities in new project areas, provided the project proponent has obtained a valid authorization, such as a lease or permit issued by an appropriate state or local government agency, and those activities do not directly affect more than 1/2-acre of submerged aquatic vegetation beds.

Notification: The permittee must submit a pre-construction notification to the district engineer if: (1) dredge harvesting, tilling, or harrowing is conducted in areas inhabited by submerged aquatic vegetation; (2) the activity will include a species not previously cultivated in the waterbody; (3) the activity involves a change from bottom culture to floating or suspended culture; or (4) the activity occurs in a new project area. (See general condition 31.)

In addition to the information required by paragraph (b) of general condition 31, the pre-construction notification must also include the following information: (1) a map showing the boundaries of the project area, with latitude and longitude coordinates for each corner of the project area; (2) the name(s) of the cultivated species; and (3) whether canopy predator nets are being used. (Sections 10 and 404)

Note 1: The permittee should notify the applicable U.S. Coast Guard office regarding the project.

Note 2: To prevent introduction of aquatic nuisance species, no material that has been taken from a different waterbody may be reused in the current project area, unless it has been treated in accordance with the applicable regional aquatic nuisance species management plan.

Note 3: The Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990 defines “aquatic nuisance species” as “a nonindigenous species that threatens the diversity or abundance of native species or the ecological stability of infested waters, or commercial, agricultural, aquacultural, or recreational activities dependent on such waters.”

49. Coal Remining Activities. Discharges of dredged or fill material into non-tidal waters of the United States associated with the remining and reclamation of lands that were previously mined for coal. The activities must already be authorized, or they must currently be in process as part of an integrated permit processing procedure, by the Department of Interior Office of Surface Mining Reclamation and Enforcement, or by states with approved programs under Title IV or Title V of the Surface Mining Control and Reclamation Act (SMCRA) of 1977. Areas previously mined include reclaimed mine sites, abandoned mine land areas, or lands under bond forfeiture contracts.

As part of the project, the permittee may conduct new coal mining activities in conjunction with the remining activities when he or she clearly demonstrates to the district engineer that the overall mining plan will result in a net increase in aquatic resource functions. The Corps will consider the SMCRA agency's decision regarding the amount of currently undisturbed adjacent lands needed to facilitate the remining and reclamation of the previously mined area. The total area disturbed by new mining must not exceed 40 percent of the total acreage covered by both the remined area and the additional area necessary to carry out the reclamation of the previously mined area.

Notification: The permittee must submit a pre-construction notification and a document describing how the overall mining plan will result in a net increase in aquatic resource functions to the district engineer and receive written authorization prior to commencing the activity. (See general condition 31.) (Sections 10 and 404)

50. Underground Coal Mining Activities. Discharges of dredged or fill material into non-tidal waters of the United States associated with underground coal mining and reclamation operations provided the activities are authorized, or are currently being processed as part of an integrated permit processing procedure, by the Department of Interior, Office of Surface Mining Reclamation and Enforcement, or by states with approved programs under Title V of the Surface Mining Control and Reclamation Act of 1977.

The discharge must not cause the loss of greater than 1/2-acre of non-tidal waters of the United States, including the loss of no more than 300 linear feet of stream bed, unless for intermittent and ephemeral stream beds the district engineer waives the 300 linear foot limit by making a written determination concluding that the discharge will result in minimal adverse effects. This NWP does not authorize discharges into non-tidal wetlands adjacent to tidal waters. This NWP does not authorize coal preparation and processing activities outside of the mine site.

Notification: The permittee must submit a pre-construction notification to the district engineer and receive written authorization prior to commencing the activity. (See general condition 31.) If reclamation is required by other statutes, then a copy of the reclamation plan must be submitted with the pre-construction notification. (Sections 10 and 404)

Note: Coal preparation and processing activities outside of the mine site may be authorized by NWP 21.

51. Land-Based Renewable Energy Generation Facilities. Discharges of dredged or fill material into non-tidal waters of the United States for the construction, expansion, or modification of land-based renewable energy production facilities, including attendant features. Such facilities include infrastructure to collect solar (concentrating solar power and photovoltaic), wind, biomass, or geothermal energy. Attendant features may include, but are not

limited to roads, parking lots, and stormwater management facilities within the land-based renewable energy generation facility.

The discharge must not cause the loss of greater than 1/2-acre of non-tidal waters of the United States, including the loss of no more than 300 linear feet of stream bed, unless for intermittent and ephemeral stream beds the district engineer waives the 300 linear foot limit by making a written determination concluding that the discharge will result in minimal adverse effects. This permit does not authorize discharges into non-tidal wetlands adjacent to tidal waters.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 31.) (Sections 10 and 404)

Note 1: Utility lines constructed to transfer the energy from the land-based renewable generation facility to a distribution system, regional grid, or other facility are generally considered to be linear projects and each separate and distant crossing of a waterbody is eligible for treatment as a separate single and complete linear project. Those utility lines may be authorized by NWP 12 or another Department of the Army authorization. If the only activities associated with the construction, expansion, or modification of a land-based renewable energy generation facility that require Department of the Army authorization are discharges of dredged or fill material into waters of the United States to construct, maintain, repair, and/or remove utility lines, then NWP 12 shall be used if those activities meet the terms and conditions of NWP 12, including any applicable regional conditions and any case-specific conditions imposed by the district engineer.

Note 2: For any activity that involves the construction of a wind energy generating structure, solar tower, or overhead transmission line, a copy of the PCN and NWP verification will be provided to the Department of Defense Siting Clearinghouse, which will evaluate potential effects on military activities.

52. Water-Based Renewable Energy Generation Pilot Projects. Structures and work in navigable waters of the United States and discharges of dredged or fill material into waters of the United States for the construction, expansion, modification, or removal of water-based wind or hydrokinetic renewable energy generation pilot projects and their attendant features. Attendant features may include, but are not limited to, land-based collection and distribution facilities, control facilities, roads, parking lots, and stormwater management facilities.

For the purposes of this NWP, the term “pilot project” means an experimental project where the renewable energy generation units will be monitored to collect information on their performance and environmental effects at the project site.

The discharge must not cause the loss of greater than 1/2-acre of waters of the United States, including the loss of no more than 300 linear feet of stream bed, unless for intermittent and ephemeral stream beds the district engineer waives the 300 linear foot limit by making a written determination concluding that the discharge will result in minimal adverse effects. The placement of a transmission line on the bed of a navigable water of the United States from the renewable energy generation unit(s) to a land-based collection and distribution facility is considered a structure under Section 10 of the Rivers and Harbors Act of 1899 (see 33 CFR 322.2(b)), and the placement of the transmission line on the bed of a navigable water of the United States is not a loss of waters of the United States for the purposes of applying the 1/2-acre or 300 linear foot limits.

For each single and complete project, no more than 10 generation units (e.g., wind turbines or hydrokinetic devices) are authorized.

This NWP does not authorize activities in coral reefs. Structures in an anchorage area established by the U.S. Coast Guard must comply with the requirements in 33 CFR part 322.5(l)(2). Structures may not be placed in established danger zones or restricted areas as designated in 33 CFR part 334, Federal navigation channels, shipping safety fairways or traffic separation schemes established by the U.S. Coast Guard (see 33 CFR part 322.5(l)(1)), or EPA or Corps designated open water dredged material disposal areas.

Upon completion of the pilot project, the generation units, transmission lines, and other structures or fills associated with the pilot project must be removed to the maximum extent practicable unless they are authorized by a separate Department of the Army authorization, such as another NWP, an individual permit, or a regional general permit. Completion of the pilot project will be identified as the date of expiration of the Federal Energy Regulatory Commission (FERC) license, or the expiration date of the NWP authorization if no FERC license is issued.

Notification: The permittee must submit a pre-construction notification to the district engineer prior to commencing the activity. (See general condition 31.) (Sections 10 and 404)

Note 1: Utility lines constructed to transfer the energy from the land-based collection facility to a distribution system, regional grid, or other facility are generally considered to be linear projects and each separate and distant crossing of a waterbody is eligible for treatment as a separate single and complete linear project. Those utility lines may be authorized by NWP 12 or another Department of the Army authorization.

Note 2: An activity that is located on an existing locally or federally maintained U.S. Army Corps of Engineers project requires separate approval from the Chief of Engineers under 33 U.S.C. 408.

Note 3: If the pilot project, including any transmission lines, is placed in navigable waters of the United States (i.e., section 10 waters) within the coastal United States, the Great Lakes, and United States territories, copies of the pre-construction notification and NWP verification will be sent by the Corps to the National Oceanic and Atmospheric Administration, National Ocean Service, for charting the generation units and associated transmission line(s) to protect navigation.

Note 4: For any activity that involves the construction of a wind energy generating structure, solar tower, or overhead transmission line, a copy of the PCN and NWP verification will be provided to the Department of Defense Siting Clearinghouse, which will evaluate potential effects on military activities.

C. Nationwide Permit General Conditions

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the

provisions of 33 CFR §§ 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR § 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

1. Navigation. (a) No activity may cause more than a minimal adverse effect on navigation.

(b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

(c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

2. Aquatic Life Movements. No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species.

3. Spawning Areas. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

4. Migratory Bird Breeding Areas. Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

5. Shellfish Beds. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

6. Suitable Material. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act).

7. Water Supply Intakes. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

8. Adverse Effects From Impoundments. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

9. Management of Water Flows. To the maximum extent practicable, the pre-construction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization and storm water management activities, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the pre-construction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

10. Fills Within 100-Year Floodplains. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

11. Equipment. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

12. Soil Erosion and Sediment Controls. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow.

13. Removal of Temporary Fills. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

14. Proper Maintenance. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

15. Single and Complete Project. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

16. Wild and Scenic Rivers. No activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a “study river” for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status. Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service).

17. Tribal Rights. No activity or its operation may impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights.

18. Endangered Species. (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which “may affect” a listed species or critical habitat, unless Section 7 consultation addressing the effects of the proposed activity has been completed.

(b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address ESA compliance for the NWP activity, or whether additional ESA consultation is necessary.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that might be affected by the proposed work or that utilize the designated critical habitat that might be affected by the proposed work. The district engineer will determine whether the proposed activity “may affect” or will have “no effect” to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps’ determination within 45 days of receipt of a complete pre-construction notification. In cases where the non-Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the project, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification the proposed activities will have “no effect” on listed species or critical habitat, or until Section 7 consultation has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species-specific regional endangered species conditions to the NWPs.

(e) Authorization of an activity by a NWP does not authorize the “take” of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with “incidental take” provisions, etc.) from the U.S. FWS or the NMFS, The Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The word “harm” in the definition of “take” means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

(f) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the U.S. FWS and NMFS or their world wide web pages at <http://www.fws.gov/> or <http://www.fws.gov/ipac> and <http://www.noaa.gov/fisheries.html> respectively.

19. Migratory Birds and Bald and Golden Eagles. The permittee is responsible for obtaining any “take” permits required under the U.S. Fish and Wildlife Service’s regulations governing compliance with the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act. The permittee should contact the appropriate local office of the U.S. Fish and Wildlife Service to determine if such “take” permits are required for a particular activity.

20. Historic Properties. (a) In cases where the district engineer determines that the activity may affect properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

(b) Federal permittees should follow their own procedures for complying with the requirements of Section 106 of the National Historic Preservation Act. Federal permittees must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will review the documentation and determine whether it is sufficient to address section 106 compliance for the NWP activity, or whether additional section 106 consultation is necessary.

(c) Non-federal permittees must submit a pre-construction notification to the district engineer if the authorized activity may have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the pre-construction notification must state which historic properties may be affected by the proposed work or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of or potential for the presence of historic resources can be sought from the State Historic Preservation Officer or Tribal Historic Preservation Officer, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of Section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted and these efforts, the district engineer shall determine whether the proposed activity has the potential to cause an effect on the historic properties. Where the non-Federal applicant has identified historic properties on which the activity may have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects or that consultation under Section 106 of the NHPA has been completed.

(d) The district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA Section 106 consultation is required. Section 106 consultation is not required when the Corps determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR §800.3(a)). If NHPA

section 106 consultation is required and will occur, the district engineer will notify the non-Federal applicant that he or she cannot begin work until Section 106 consultation is completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

(e) Prospective permittees should be aware that section 110k of the NHPA (16 U.S.C. 470h-2(k)) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of Section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

21. Discovery of Previously Unknown Remains and Artifacts. If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

(a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, and 52 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

(b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, and 38, notification is required in accordance with general condition 31, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

23. Mitigation. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that adverse effects on the aquatic environment are minimal:

(a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

(b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the adverse effects to the aquatic environment are minimal.

(c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1/10-acre and require pre-construction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse effects of the proposed activity are minimal, and provides a project-specific waiver of this requirement. For wetland losses of 1/10-acre or less that require pre-construction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in minimal adverse effects on the aquatic environment. Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

(1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in minimal adverse effects on the aquatic environment.

(2) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, wetland restoration should be the first compensatory mitigation option considered.

(3) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) – (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)).

(4) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided.

(5) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan.

(d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation, such as stream rehabilitation, enhancement, or preservation, to ensure that the activity results in minimal adverse effects on the aquatic environment.

(e) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any project resulting in the loss of greater than 1/2-acre of waters of

the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that a project already meeting the established acreage limits also satisfies the minimal impact requirement associated with the NWP.

(f) Compensatory mitigation plans for projects in or near streams or other open waters will normally include a requirement for the restoration or establishment, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, riparian areas may be the only compensatory mitigation required. Riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to establish a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or establishing a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

(g) Permittees may propose the use of mitigation banks, in-lieu fee programs, or separate permittee-responsible mitigation. For activities resulting in the loss of marine or estuarine resources, permittee-responsible compensatory mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

(h) Where certain functions and services of waters of the United States are permanently adversely affected, such as the conversion of a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse effects of the project to the minimal level.

24. Safety of Impoundment Structures. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

25. Water Quality. Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA Section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

26. Coastal Zone Management. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

27. Regional and Case-By-Case Conditions. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

28. Use of Multiple Nationwide Permits. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

29. Transfer of Nationwide Permit Verifications. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

“When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.”

(Transferee)

(Date)

30. Compliance Certification. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

(a) A statement that the authorized work was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

(b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(1)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

(c) The signature of the permittee certifying the completion of the work and mitigation.

31. Pre-Construction Notification. (a) Timing. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

(1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

(2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or in the vicinity of the project, or to notify the Corps pursuant to general condition 20 that the activity may have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or Section 106 of the National Historic Preservation (see 33 CFR 330.4(g)) has been completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee's right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

(b) Contents of Pre-Construction Notification: The PCN must be in writing and include the following information:

(1) Name, address and telephone numbers of the prospective permittee;

(2) Location of the proposed project;

(3) A description of the proposed project; the project's purpose; direct and indirect adverse environmental effects the project would cause, including the anticipated amount of loss of water of the United States expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity. The description should be sufficiently detailed to allow the district engineer to determine that the adverse effects of the project will be minimal and to determine the need for compensatory mitigation. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the project and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

(4) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many waters of the United States. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

(5) If the proposed activity will result in the loss of greater than 1/10-acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse effects are minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

(6) If any listed species or designated critical habitat might be affected or is in the vicinity of the project, or if the project is located in designated critical habitat, for non-Federal applicants the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed work or utilize the designated critical habitat that may be affected by the proposed work. Federal applicants must provide documentation demonstrating compliance with the Endangered Species Act; and

(7) For an activity that may affect a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, for non-Federal applicants the PCN must state which historic property may be affected by the proposed work or include a vicinity map indicating the location of the historic property. Federal applicants must provide documentation demonstrating compliance with Section 106 of the National Historic Preservation Act.

(c) Form of Pre-Construction Notification: The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is a PCN and must include all of the information required in paragraphs (b)(1) through (7) of this general condition. A letter containing the required information may also be used.

(d) Agency Coordination: (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity's compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the project's adverse environmental effects to a minimal level.

(2) For all NWP activities that require pre-construction notification and result in the loss of greater than 1/2-acre of waters of the United States, for NWP 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52 activities that require pre-construction notification and will result in the loss of greater than 300 linear feet of stream bed, and for all NWP 48 activities that require pre-construction notification, the district engineer will immediately provide (e.g., via e-mail, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (U.S. FWS, state natural resource or water quality agency, EPA, State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Office (THPO), and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to telephone or fax the district engineer notice that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the pre-construction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity's compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure the net adverse environmental effects to the aquatic environment of the proposed activity are minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies' concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

(3) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by Section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

(4) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of pre-construction notifications to expedite agency coordination.

D. District Engineer's Decision

1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. For a linear project, this determination will include an evaluation of the individual crossings to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings authorized by NWP. If an applicant requests a waiver of the 300 linear foot limit on impacts to intermittent or ephemeral streams or of an otherwise applicable limit, as provided for in NWPs 13, 21, 29, 36, 39, 40, 42, 43, 44, 50, 51 or 52, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in minimal adverse effects. When making minimal effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. The district engineer will also consider site specific factors, such as the environmental setting in the

vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

2. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for projects with smaller impacts. The district engineer will consider any proposed compensatory mitigation the applicant has included in the proposal in determining whether the net adverse environmental effects to the aquatic environment of the proposed activity are minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse effects on the aquatic environment are minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure no more than minimal adverse effects on the aquatic environment. If the net adverse effects of the project on the aquatic environment (after consideration of the compensatory mitigation proposal) are determined by the district engineer to be minimal, the district engineer will provide a timely written response to the applicant. The response will state that the project can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

3. If the district engineer determines that the adverse effects of the proposed work are more than minimal, then the district engineer will notify the applicant either: (a) that the project does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the project is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level; or (c) that the project is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse effects occur to the aquatic environment, the activity will be authorized within the 45-day PCN period, with activity-specific

conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation or a requirement that the applicant submit a mitigation plan that would reduce the adverse effects on the aquatic environment to the minimal level. When mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

E. Further Information

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.
2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.
3. NWPs do not grant any property rights or exclusive privileges.
4. NWPs do not authorize any injury to the property or rights of others.
5. NWPs do not authorize interference with any existing or proposed Federal project.

F. Definitions

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Direct effects: Effects that are caused by the activity and occur at the same time and place.

Discharge: The term “discharge” means any discharge of dredged or fill material.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Ephemeral stream: An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

High Tide Line: The line of intersection of the land with the water’s surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Independent utility: A test to determine what constitutes a single and complete non-linear project in the Corps regulatory program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Indirect effects: Effects that are caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.

Intermittent stream: An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. The loss of stream bed includes the linear feet of stream bed that is filled or excavated. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities eligible for exemptions under Section 404(f) of the Clean Water Act are not considered when calculating the loss of waters of the United States.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. The definition of a wetland can be found at 33 CFR 328.3(b). Non-tidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open water: For purposes of the NWPs, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of standing or flowing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of “open waters” include rivers, streams, lakes, and ponds.

Ordinary High Water Mark: An ordinary high water mark is a line on the shore established by the fluctuations of water and indicated by physical characteristics, or by other appropriate means that consider the characteristics of the surrounding areas (see 33 CFR 328.3(e)).

Perennial stream: A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary

source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Pre-construction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where pre-construction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Re-establishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: re-establishment and rehabilitation.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a coarse substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Riparian areas: Riparian areas are lands adjacent to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects riverine, lacustrine, estuarine, and marine waters with their adjacent wetlands, non-wetland waters, or uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 23.)

Shellfish seeding: The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist

of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

Single and complete linear project: A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term “single and complete project” is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Single and complete non-linear project: For non-linear projects, the term “single and complete project” is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete non-linear project must have independent utility (see definition of “independent utility”). Single and complete non-linear projects may not be “piecemealed” to avoid the limits in an NWP authorization.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream’s course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a wetland (i.e., water of the United States) that is inundated by tidal waters. The definitions of a wetland and tidal waters can be found at 33 CFR 328.3(b) and 33 CFR 328.3(f), respectively. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable

rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are located channelward of the high tide line, which is defined at 33 CFR 328.3(d).

Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: For purposes of the NWP, a waterbody is a jurisdictional water of the United States. If a jurisdictional wetland is adjacent – meaning bordering, contiguous, or neighboring – to a waterbody determined to be a water of the United States under 33 CFR 328.3(a)(1)-(6), that waterbody and its adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)). Examples of “waterbodies” include streams, rivers, lakes, ponds, and wetlands.