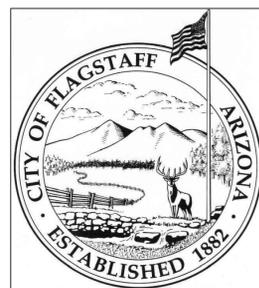


# CLAY AVENUE WASH DRAINAGE IMPROVEMENTS

## CIVIL CONSTRUCTION PLANS

LOCATED IN THE NORTH EAST QUARTER OF SECTION 21,  
TOWNSHIP 21 NORTH, RANGE 7 EAST, OF THE GILA AND SALT RIVER MERIDIAN,  
FLAGSTAFF, COCONINO COUNTY, ARIZONA



### CITY CONCEPT APPROVAL

THE CITY APPROVES THESE PLANS FOR CONCEPT ONLY. THE CITY SHALL NOT BE LIABLE FOR ERRORS OR OMISSIONS OF THE DESIGN ENGINEER.

**CITY ENGINEER:**

BY: \_\_\_\_\_ DATE: \_\_\_\_\_

**CITY PUBLIC WORKS DIRECTOR**

BY: \_\_\_\_\_ DATE: \_\_\_\_\_

**CITY UTILITIES DIRECTOR**

BY: \_\_\_\_\_ DATE: \_\_\_\_\_

### AUTHORIZATION TO CONSTRUCT:

THE SIGNATURES ABOVE ARE REQUIRED BEFORE THE CONTRACTOR CAN COMMENCE. UNSIGNED, THESE PLANS HAVE NOT BEEN COMPLETED WITH RESPECT TO AGENCY REVIEW AND APPROVAL.

### UTILITY COMPANY APPROVALS:

**ARIZONA PUBLIC SERVICE**

MELISSA NELSON (BY LETTER) 08/26/14  
BY: \_\_\_\_\_ DATE: \_\_\_\_\_

**UNISOURCE ENERGY SERVICES**

KENNETH MANSON (BY LETTER) 08/19/14  
BY: \_\_\_\_\_ DATE: \_\_\_\_\_

**CENTURY LINK**

CAROLE WILSON (BY LETTER) 09/02/14  
BY: \_\_\_\_\_ DATE: \_\_\_\_\_

**SUDDENLINK**

SANFORD YAZZIE (BY LETTER) 08/28/14  
BY: \_\_\_\_\_ DATE: \_\_\_\_\_

### UTILITY CONFLICT NOTE

NO CONFLICTS WERE ENCOUNTERED WITH THE EXISTING UTILITIES. SEE APPROVAL LETTERS FROM APS (MELISSA NELSON), UNISOURCE ENERGY SERVICES (KENNETH MANSON), CENTURYLINK (CAROLE WILSON) AND SUDDENLINK (SANFORD YAZZIE).

### STREET TREES NOTE

STREET TREES ARE TO BE PLANTED WITH NATURAL GROCERS DEVELOPMENT. CITY OF FLAGSTAFF STORMWATER MANAGEMENT TO WORK OUT PAYMENT AND/OR CREDIT WITH NATURAL GROCERS.

### PROPERTY INFORMATION:

ADDRESS: 301 S. MILTON ROAD  
FLAGSTAFF, ARIZONA 86001  
APN#: 103-06-003B (0.49 ACRES)  
ZONING: (HC) HIGHWAY COMMERCIAL

### OWNER:

VITAMIN COTTAGE NATURAL FOOD MARKETS, INC.  
12612 W. ALAMEDA PKWY  
LAKEWOOD, CO 80228

### PROJECT MANAGER:

CITY OF FLAGSTAFF  
ATTN: MALCOM ALTER  
211 W. ASPEN AVE.  
FLAGSTAFF, AZ 86001

### CIVIL ENGINEER:

SHEPHARD-WESNITZER, INC.  
OTTIS BEGAY, P.E.  
110 WEST DALE AVENUE  
FLAGSTAFF, ARIZONA 86001  
(928) 773-0354

### FEMA DESIGNATION

PER FEDERAL FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 04005C6809G THIS PROPERTY IS IN 'ZONE AE'

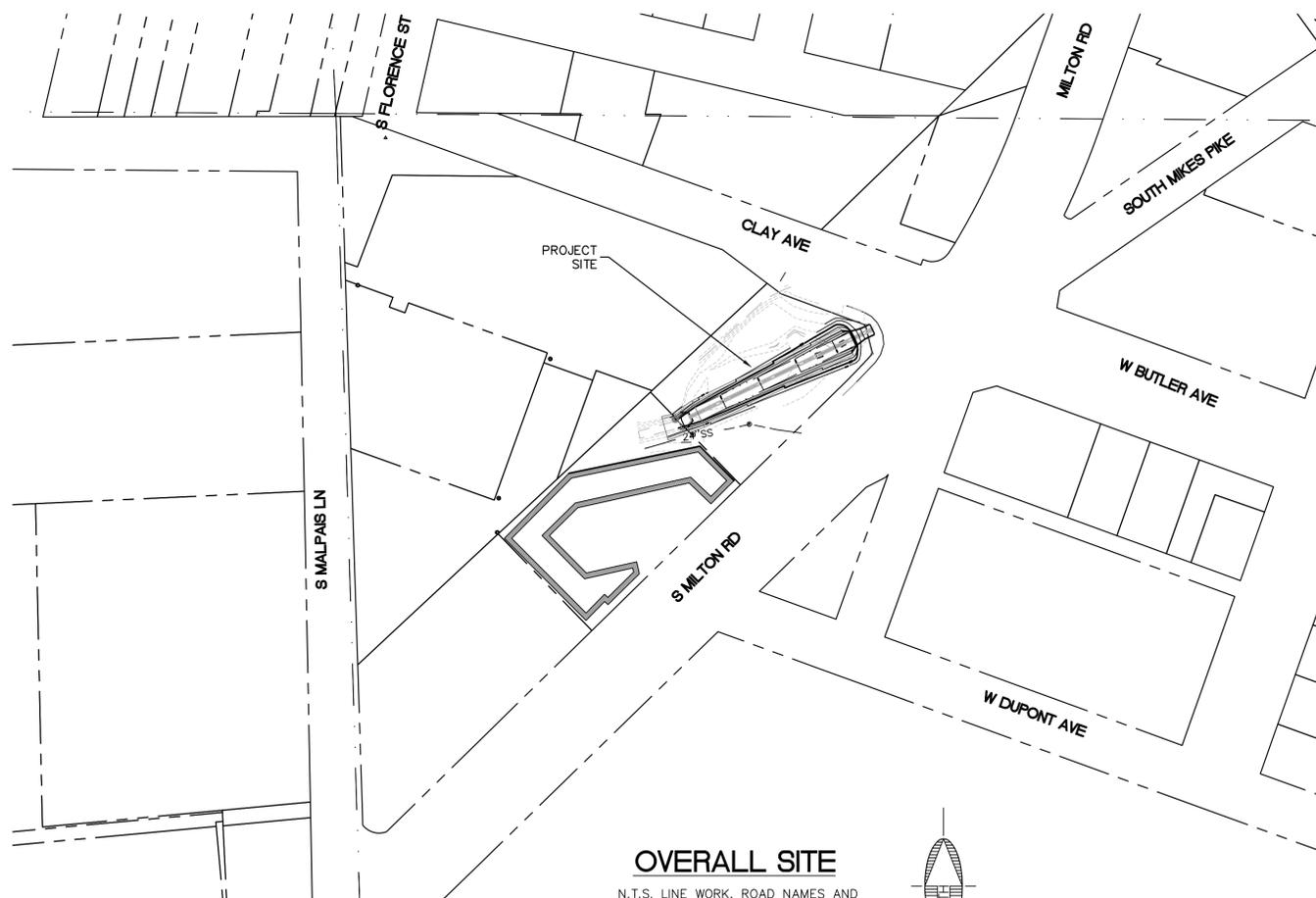
### COORDINATE SYSTEM DETAILS

LINEAR UNIT: SURVEY FEET  
GEODETIC DATUM: NAD 83 (CONUS)  
VERTICAL DATUM: NAVD 88, REFERENCED FROM SWI CONTROL POINT #1560 (SEE BELOW)  
SYSTEM: U.S. STATE PLANE COORDINATE SYSTEM, 1983  
ZONE: ARIZONA CENTRAL (0202)  
GEOID MODEL: NGS GEOID MODEL 09 (FOUR CORNERS STATES)  
PROJECTION: TRANSVERSE MERCATOR  
LATITUDE OF GRID ORIGIN: 31° 00' 00" N  
LONGITUDE OF CENTRAL MERIDIAN: 111° 55' 00" W  
NORTHING AT GRID ORIGIN: 0 SFT  
EASTING AT CENTRAL MERIDIAN: 699998.60 SFT  
CENTRAL MERIDIAN SCALE FACTOR: 0.99990000

THE BASIS OF BEARINGS IS TRUE GEODETIC NORTH; NOTE THAT THE MEASURED GRID BEARINGS, OR IMPLIED BY GRID COORDINATES, DO NOT EQUAL GEODETIC BEARINGS DUE TO MERIDIAN CONVERGENCE.

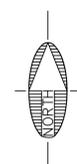
ORTHOMETRIC HEIGHTS (ELEVATIONS) WERE TRANSFERRED TO THE SITE FROM SWI CONTROL POINT #1560 USING GPS WITH NGS GEOID MODEL "GEOID 09". ELEVATIONS SHOWN HEREON ARE REFERENCED TO THE SWI 'RIO DE FLAG' NETWORK SOLUTION ELEVATION OF THIS STATION.

THE SURVEY WAS CONDUCTED USING GPS REFERENCED TO THE NATIONAL SPATIAL REFERENCE SYSTEM. A PARTIAL LIST OF POINT COORDINATES FOR THIS SURVEY IS GIVEN BELOW (ADDITIONAL COORDINATES ARE AVAILABLE UPON REQUEST). LOCAL NETWORK ESTIMATES ARE GIVEN AT THE 95% CONFIDENCE LEVEL AND ARE BASED ON AN APPROPRIATELY CONSTRAINED LEAST-SQUARES ADJUSTMENT OF OVER-DETERMINED AND STATISTICALLY INDEPENDENT OBSERVATIONS.



### OVERALL SITE

N.T.S. LINE WORK, ROAD NAMES AND OWNERSHIP DATA AS SHOWN ON THIS SHEET ARE FROM CITY OF FLAGSTAFF GIS DATA.



### LEGEND

- 6895 — PROPOSED INDEX CONTOUR
- ..... PROPOSED INTERMEDIATE CONTOUR
- - - - - 6985 - - - - - EXISTING INDEX CONTOUR
- ..... EXISTING INTERMEDIATE CONTOUR
- SS — SS — EXISTING SEWER PIPE
- UG — UG — EXISTING UNDERGROUND ELECTRIC
- ..... EXISTING DRAINAGE FLOWLINE
- ▬▬▬▬▬▬▬▬▬▬ EXISTING STORM DRAIN PIPE (CMP)
- ▬▬▬▬▬▬▬▬▬▬ PROPOSED LIMITS OF TRM
- ▬▬▬▬▬▬▬▬▬▬ EXISTING CATCH BASIN
- St EXISTING STORM DRAIN MANHOLE
- ☀ EXISTING SIGNAL POLE
- PROPERTY CORNER, FOUND REBAR
- S EXISTING SEWER MANHOLE
- PB EXISTING PULL BOX
- ME ..... MATCH EXISTING\*
- TC ..... TOP OF CURB
- SW ..... SIDEWALK
- INV ..... INVERT
- C ..... CONCRETE
- ➔ DRAINAGE ARROW

NOTE: "MATCH EXISTING" GRADES ARE FOR REFERENCE ONLY. MATCHING EXISTING IS MORE IMPORTANT THAN THE GRADE SHOWN.

SHEET INDEX		
SHT. NO.	DWG. NO.	DESCRIPTION
1	CVR	COVER SHEET
2	DT01	NOTES SHEET
3	DT02	DETAILS SHEET
4	PP01	PLAN AND PROFILE



FLAGSTAFF ARIZONA

CLAY AVE WASH

COVER SHEET

JOB NO: 13323

DATE: SEP 14

SCALE: N/A

DRAWN: TRL

DESIGN: OKB

CHECKED: OKB

110 W. Dale Avenue  
Flagstaff, AZ 86001  
928.773.0354  
928.774.8934 fax  
www.swibz.com

REVISIONS

NO.	DESCRIPTION	DATE	BY

DRAWING NO.

**CVR**

CALL TWO WORKING DAYS BEFORE YOU DIG

1-800-STAKE-IT

SHT. NO. OF

1 4

### C.O.F. GENERAL NOTES

- APPROVAL OF THESE PLANS BY THE CITY ENGINEER IS FOR A ONE-YEAR PERIOD, SUBSEQUENT TO THE DATE OF APPROVAL. IF CONSTRUCTION WORK IS NOT STARTED WITHIN THE ONE-YEAR PERIOD, OR HAS BEEN DISCONTINUED FOR ANY REASON FOR LONGER THAN ONE YEAR, THE PLANS SHALL BE RESUBMITTED FOR REVIEW AND RE-APPROVAL.
- PLAN REVIEW BY THE CITY DOES NOT EXTEND TO MATERIAL QUANTITIES SHOWN ON THE PLANS.
- A PUBLIC WORKS PERMIT, ISSUED BY THE CITY, IS REQUIRED FOR ALL WORK IN CITY RIGHTS-OF-WAY OR EASEMENTS AND FOR CONSTRUCTION OF ANY IMPROVEMENTS INTENDED TO BECOME PUBLIC PROPERTY.
- THE CITY SHALL BE NOTIFIED 24 HOURS PRIOR TO BEGINNING DIFFERENT PHASES OF CONSTRUCTION SO THAT CITY INSPECTORS MAY BE SCHEDULED.
- ALL MATERIALS AND WORKMANSHIP SHALL COMPLY WITH FLAGSTAFF CITY CODE, TITLE 13, "ENGINEERING DESIGN AND CONSTRUCTION STANDARDS AND SPECIFICATIONS FOR NEW INFRASTRUCTURE", CURRENT "MAG UNIFORM STANDARD SPECIFICATIONS AND DETAILS FOR PUBLIC WORKS CONSTRUCTION", THE CITY OF FLAGSTAFF STORMWATER DESIGN MANUAL, AND WITH GENERALLY ACCEPTED ENGINEERING DESIGN AND CONSTRUCTION PRACTICE. ALL WORK AND MATERIALS WHICH DO NOT CONFORM TO THE STANDARDS AND SPECIFICATIONS ARE SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR IS RESPONSIBLE FOR REVISIONS UNDER CHAPTER 21 OF THESE STANDARDS WHICH MAKES MINOR MODIFICATIONS TO CERTAIN MAG SPECIFICATIONS AND DETAILS.
- ANY WORK PERFORMED WITHOUT THE KNOWLEDGE AND APPROVAL OF THE CITY ENGINEER OR HIS AUTHORIZED REPRESENTATIVE IS SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTOR'S EXPENSE.
- THE CITY ENGINEER OR HIS AUTHORIZED REPRESENTATIVE MAY SUSPEND THE WORK BY WRITTEN NOTICE WHEN, IN HIS JUDGMENT, PROGRESS IS UNSATISFACTORY, WORK BEING DONE IS UNAUTHORIZED OR DEFECTIVE, WEATHER CONDITIONS ARE UNSUITABLE, OR THERE IS DANGER TO THE PUBLIC HEALTH OR SAFETY.
- THE CITY ENGINEER MAY ORDER ANY OR ALL MATERIALS USED IN THE WORK TO BE TESTED ACCORDING TO THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) AND THE AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) STANDARDS. THE CONTRACTOR SHALL, AT HIS EXPENSE, SUPPLY ALL SAMPLES REQUIRED FOR TESTING.
- ACCESS WHICH MEETS SECTION 13-13-004-0001, FIRE HYDRANTS, WATER MAINS, AND STREET NAME SIGNS SHALL BE IN PLACE AND APPROVED BEFORE AND AT ALL TIMES DURING ON-SITE COMBUSTIBLE CONSTRUCTION AND/OR PRIOR TO ISSUANCE OF BUILDING PERMITS IN NEW SUBDIVISIONS. FIRE DEPARTMENT AND ENGINEERING SECTION APPROVAL IS REQUIRED FOR OBSTRUCTION OF ACCESS OR WATER SYSTEM SHUTDOWN.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE OF THE STREETS AND OF PARTIALLY CLOSED PORTIONS OF THE WORK UNTIL FINAL ACCEPTANCE OF THE WORK. THE CONTRACTOR SHALL SUBMIT TO THE CITY ENGINEER FOR APPROVAL A CONSTRUCTION SCHEDULE FOR ANY STREETS REQUIRED TO BE CLOSED OR PARTIALLY CLOSED FOR THE CONSTRUCTION ACTIVITY. THE CONTRACTOR SHALL REOPEN THE STREETS NO LATER THAN THE OPENING DATE SHOWN ON THE CONSTRUCTION SCHEDULE OR UPON ORDER OF THE CITY ENGINEER. THE REGULATION AND CONTROL OF CONSTRUCTION TRAFFIC SHALL BE AS DIRECTED BY THE CITY ENGINEER OR HIS AUTHORIZED REPRESENTATIVE.
- APPROVAL OF A PORTION OF THE WORK IN PROGRESS DOES NOT GUARANTEE ITS FINAL ACCEPTANCE. TESTING AND EVALUATION MAY CONTINUE UNTIL WRITTEN FINAL ACCEPTANCE OF A COMPLETE WORKABLE UNIT. ANY DEFECTS WHICH APPEAR IN THE WORK WITHIN ONE YEAR FROM THE DATE OF ACCEPTANCE AND WHICH ARE DUE TO IMPROPER WORKMANSHIP OR INFERIOR MATERIALS SUPPLIED SHALL BE CORRECTED BY OR AT THE EXPENSE OF THE OWNER/DEVELOPER OR THE CONTRACTOR.
- ACCEPTANCE OF COMPLETED PUBLIC IMPROVEMENTS WILL NOT BE GIVEN UNTIL DEFECTIVE OR UNAUTHORIZED WORK IS REMOVED, AND FINAL CLEAN-UP IS COMPLETE.
- LOCATION OF UNDERGROUND UTILITIES BEFORE WORK IS BEGUN IS TO BE ACCOMPLISHED IN ACCORDANCE WITH ARS 40-360.22.
- IF WORK IS DONE ON PRIVATE PROPERTY IN RELATION TO A PROJECT CONSTRUCTED UNDER THESE STANDARDS, THE CONTRACTOR WILL PROVIDE THE CITY WITH WRITTEN AUTHORIZATION FROM THE PROPERTY OWNER TO DO SO.
- THE ESTABLISHMENT AND USE OF TEMPORARY CONSTRUCTION YARDS SHALL CONFORM TO THE CURRENT CITY ZONING CODE STANDARDS FOR "TEMPORARY USES".
- ALL EXCAVATED MATERIAL SHALL BE DISPOSED OF IN ACCORDANCE WITH APPLICABLE CITY CODES AND REGULATIONS. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED CITY APPROVALS AND PERMITS, AS DEEMED NECESSARY BY THE CITY, TO DISPOSE OF EXCAVATED MATERIAL.
- ALL CONSTRUCTION STAKING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR/DEVELOPER AND PERFORMED UNDER THE DIRECT SUPERVISION OF A REGISTERED LAND SURVEYOR OR CIVIL ENGINEER.
- ALL TRAFFIC SIGN SHEETING SHALL BE TYPE VIII AS DESIGNED BY ASTM D4956-07E1 STANDARD SPECIFICATIONS FOR RETROREFLECTIVE SHEETING FOR TRAFFIC CONTROL, UNLESS SPECIFIED OTHERWISE ON THE CONSTRUCTION PLANS.
- WHEN THE CONSTRUCTION PLANS SPECIFY GRAFFITI CONTROL ON BRIDGES OR OTHER STRUCTURES, THE CONTRACTOR SHALL SEAL THE STRUCTURE FIRST USING MONOCHEM AQUASEAL ME 12 AND THEN APPLY MONOCHEM PERMASHIELD, SACRIFICIAL GRAFFITI CONTROL SYSTEM (OR APPROVED EQUAL).
- ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE STABILIZED RESEEDED IN ACCORDANCE WITH CHAPTER 13-17 OF THIS TITLE. IN THE EVENT THAT THE CONSTRUCTION ACTIVITY DISTURBS MORE THAN ONE ACRE, A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) SHALL BE PREPARED IN ORDER TO OBTAIN A CONSTRUCTION GENERAL PERMIT FROM ADEC.

### C.O.F. GRADING AND DRAINAGE NOTE:

"ADEQUATE DRAINAGE, EROSION AND SEDIMENT CONTROL MEASURES, BEST MANAGEMENT PRACTICES, AND/OR OTHER STORM WATER MANAGEMENT FACILITIES SHALL BE PROVIDED AND MAINTAINED AT ALL TIMES DURING CONSTRUCTION. DAMAGES TO ADJACENT PROPERTY AND/OR THE CONSTRUCTION SITE CAUSED BY CONTRACTOR'S PROPERTY OR PROPERTY OWNER'S FAILURE TO PROVIDE AND MAINTAIN ADEQUATE DRAINAGE AND EROSION/SEDIMENT CONTROL FOR THE CONSTRUCTION AREA SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND/OR PROPERTY OWNER."

### SHEPHARD-WESNITZER GENERAL NOTES

**PROJECT SPECIFICATIONS**  
ALL WORK SHALL BE ACCOMPLISHED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING STANDARDS AND SPECIFICATIONS, AND ANY SPECIAL PROVISIONS PREPARED FOR THE PROJECT. THE TERM "CURRENT" MEANS THE DATE OF THE SPECIFICATIONS IN EFFECT AS OF THE DATE OF THE ENGINEER'S SEAL ON THESE PLANS.

MARICOPA ASSOCIATION OF GOVERNMENTS (M.A.G.) UNIFORM STANDARD SPECIFICATIONS AND DETAILS FOR PUBLIC WORKS CONSTRUCTION  
CITY OF FLAGSTAFF ENGINEERING DESIGN AND CONSTRUCTION STANDARDS & SPECIFICATION  
AMERICAN WATER WORKS ASSOCIATION STANDARDS  
ARIZONA ADMINISTRATIVE CODE  
INTERNATIONAL PLUMBING CODE (IPC)  
INTERNATIONAL BUILDING CODE (IBC)

THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS ARE REQUIRED TO OBTAIN COPIES OF THESE, AS WELL AS ANY OTHER STANDARDS OR SPECIFICATIONS REQUIRED TO SUCCESSFULLY COMPLETE THE WORK AS DESCRIBED IN THESE PLANS AND/OR ANY SPECIAL PROVISIONS PREPARED FOR THE PROJECT. THIS REQUIREMENT EXTENDS TO ANY STANDARDS, DETAILS, OR SPECIFICATIONS REFERENCED BY THE CONSTRUCTION DOCUMENTS AND NOT INCLUDED IN THE LIST ABOVE.

**QUANTITY ESTIMATE AND PAYMENT PROVISIONS**  
IF ANY MATERIAL QUANTITIES ARE SHOWN ON THESE PLANS, THEY ARE TO BE CONSIDERED AS APPROXIMATE ONLY AND ARE FURNISHED AS A CONVENIENCE TO THE CONTRACTOR IN EVALUATING THE MAGNITUDE OF THE PROJECT SCOPE. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE ACTUAL QUANTITIES OF WORK REQUIRED AND BASE HIS BID ON HIS OWN INDEPENDENT ESTIMATE OF THE WORK SCOPE AND QUANTITIES OF MATERIALS REQUIRED.

THE ESTIMATED QUANTITIES MAY NOT DIRECTLY CORRESPOND TO A BID SCHEDULE/SCHEDULE OF VALUES INCLUDED IN THE CONTRACT DOCUMENTS. PAYMENT FOR ANY WORK ACCOMPLISHED SHALL BE IN ACCORDANCE WITH THE PAYMENT PROVISIONS OUTLINED IN THE CONTRACT DOCUMENTS.

**UTILITY COORDINATION**  
THE CONTRACTOR SHALL HAVE THE RESPONSIBILITY FOR COORDINATING ALL UTILITY RELOCATIONS, VALVE BOX/MANHOLE OR OTHER SURFACE APPURTENANCE ADJUSTMENTS, RESOLUTION OF UTILITY CONFLICTS, OBTAINING NECESSARY PERMITS, SCHEDULING BLUE STAKE, CONDUCTING EXPLORATORY EXCAVATIONS IN ADVANCE OF UTILITY INSTALLATIONS, AND GENERAL CONFORMANCE TO UTILITY AGENCY REQUIREMENTS AND SPECIFICATIONS FOR CONDUCTING THE WORK.

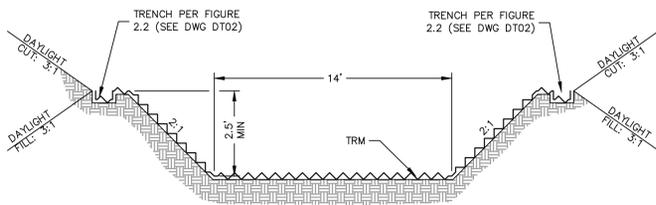
THE CONTRACTOR IS SPECIFICALLY ADVISED TO EXAMINE THE SITE FOR EVIDENCE OF AND CONFLICTS WITH EXISTING UTILITIES PRIOR TO SUBMITTING HIS BID. EXISTING UTILITIES HAVE BEEN SHOWN ON THE PLANS IN THEIR APPROXIMATE LOCATIONS BASED ON FIELD OBSERVATIONS AND ANY FURNISHED RECORD INFORMATION, BUT THERE IS NO GUARANTEE THAT ALL UTILITY CONFLICTS HAVE BEEN IDENTIFIED. AT THE TIME OF CONSTRUCTION, THE EXACT SIZES, TYPES, AND LOCATIONS OF EXISTING UNDERGROUND IMPROVEMENTS SHALL BE DETERMINED BY THE CONTRACTOR AND HE SHALL FURNISH MATERIALS AS NECESSARY TO CONSTRUCT THE REQUIRED CONNECTIONS.

THE CONTRACTOR SHALL PERFORM ALL NECESSARY POTHoles AND UTILITY LOCATING AT LEAST TWO WEEKS IN ADVANCE OF ALL UNDERGROUND UTILITY WORK TO ENSURE EXPEDIENT COMPLETION OF THE WORK IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. LOCATING EXISTING UTILITIES FOR THE PURPOSE OF IDENTIFYING CONFLICTS IN ADVANCE OF THE UTILITY RELOCATIONS IS AN IMPORTANT ELEMENT OF THE PROJECT. FAILURE OF THE CONTRACTOR TO LOCATE EXISTING UTILITIES AT LEAST TWO WEEKS IN ADVANCE OF THE CONSTRUCTION ACTIVITIES WILL DIMINISH HIS ABILITY TO MAKE A CLAIM FOR DELAYS FOR UTILITY RELOCATIONS.

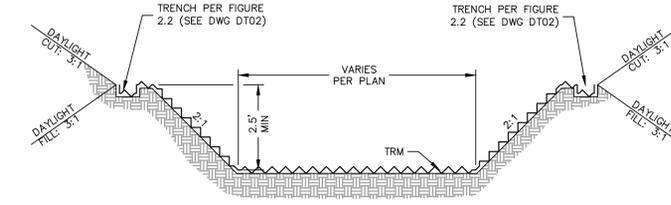
ALL FRAMES, COVERS AND VALVE BOXES IN THE CONSTRUCTION AREA SHALL BE ADJUSTED TO FINAL FINISH GRADES, WHETHER INDICATED ON THE PLANS OR NOT. ANY NECESSARY ADJUSTMENTS WHICH ARE NOT SEPARATELY ITEMIZED IN THE BID SCHEDULE SHALL BE CONSIDERED INCIDENTAL TO THE WORK.

THE APPROPRIATE UTILITY COMPANIES SHALL BE NOTIFIED BY THE CONTRACTOR PRIOR TO ANY CONSTRUCTION. "BLUE STAKE" NUMBER IS 1-800-STAKE-IT. CONTRACTOR SHALL ALLOW TWO WORKING DAYS AFTER "BLUE STAKE" IS NOTIFIED, BEFORE COMMENCING ANY EXCAVATION WORK IN PROXIMITY OF BURIED UTILITIES.

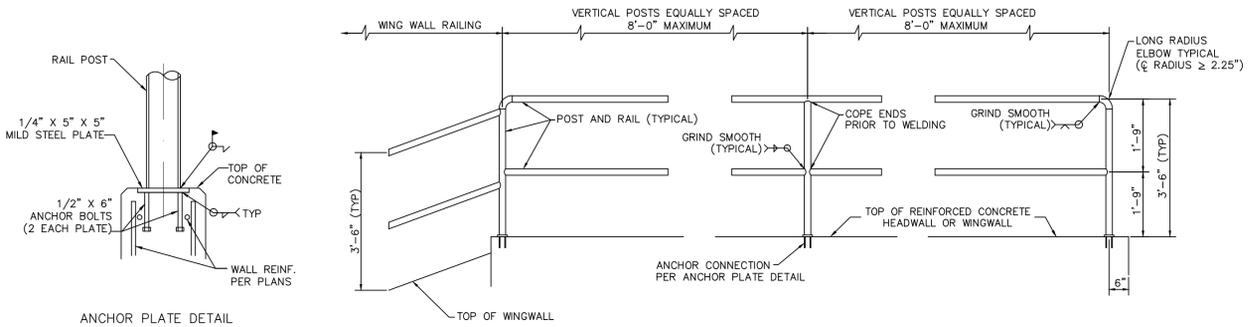
AT LEAST TWO WORKING DAYS PRIOR NOTICE IS REQUIRED BEFORE DISRUPTING EXISTING UTILITY SERVICES TO MAKE CONNECTIONS. THE NOTICE MUST INCLUDE THE EXACT TIME OF THE DISRUPTION OF SERVICE AND THE EXPECTED DURATION OF THE LOSS OF SERVICE. THE NOTICE SHALL BE FURNISHED TO THE OWNER OR OTHERS AS SPECIFIED IN THE CONTRACT DOCUMENTS.



**A TYPICAL CHANNEL SECTION**  
STA. 10+23.00 - STA. 11+89.00 N.T.S.

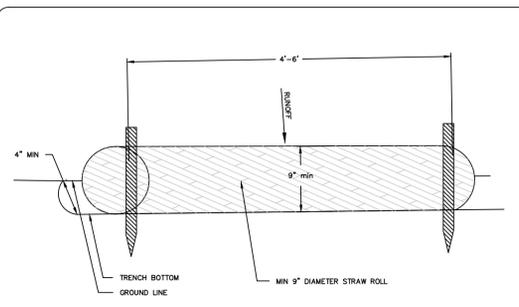


**B TRANSITION CHANNEL SECTION**  
STA. 10+03.00 - STA. 10+23.00 N.T.S.

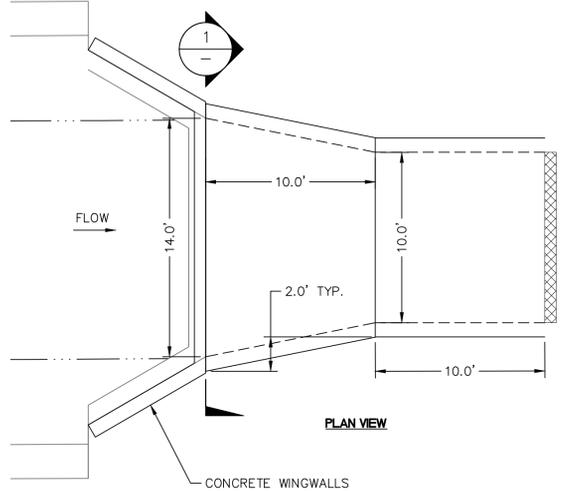


**C SAFETY RAIL**  
N.T.S.

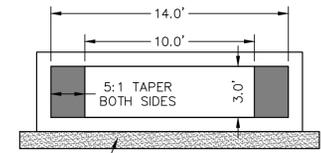
- NOTES:**
- POSTS AND RAILS SHALL BE 1.5" SCHEDULE 40 CORTEN STEEL PIPE ASTM A 847
  - VERTICAL POSTS TO BE EVENLY SPACED.
  - REMOVE ALL SHARP EDGES.
  - INSTALL SAFETY RAIL AS REQUIRED BY PLANS OR SPECIFICATIONS.
  - THE EMBEDMENT FOR ANCHOR SHALL BE LOCATED INSIDE THE WALL REINFORCEMENT CAGE.



**STRAW ROLL STAKED IN TRENCH**  
NOT TO SCALE



**D BOX CULVERT TAPER DETAIL**  
N.T.S.



- CROSS SECTION - 1**
- NOTES:**
- CONTRACTOR TO SUBMIT SHOP DRAWINGS INDICATING WALL AND FLOOR THICKNESS AND REINFORCING.
  - STEEL REINFORCEMENT PER M.A.G. SPEC. 727.
  - BOX CULVERTS SHALL BE SUPPORTED ON 12" OF ENGINEERED FILL, MEASURED FROM BOTTOM OF STRUCTURE, COMPACTED TO 95% (MIN.) COMPACTION IN ACCORDANCE WITH ASTM D 698. THE ENGINEERED FILL SHALL EXTEND LATERALLY 12" BEYOND FOUNDATION FOOTPRINT.



FLAGSTAFF ARIZONA

CLAY AVE WASH

NOTES AND DETAILS SHEET (1)

JOB NO: 13323 DATE: SEP 14 SCALE: N/A DRAWN: TRL DESIGN: OKB CHECKED: OKB

110 W. Dole Avenue Flagstaff, AZ 86001 928.774.0354 928.774.8934 fax www.swibz.com

SWI Shephard Wesnitzer, Inc.

NO.	DESCRIPTION	DATE	BY

CALL TWO WORKING DAYS BEFORE YOU DIG

1-800-STAKE-IT

DRAWING NO. DT01

SHT NO. 2 OF 4

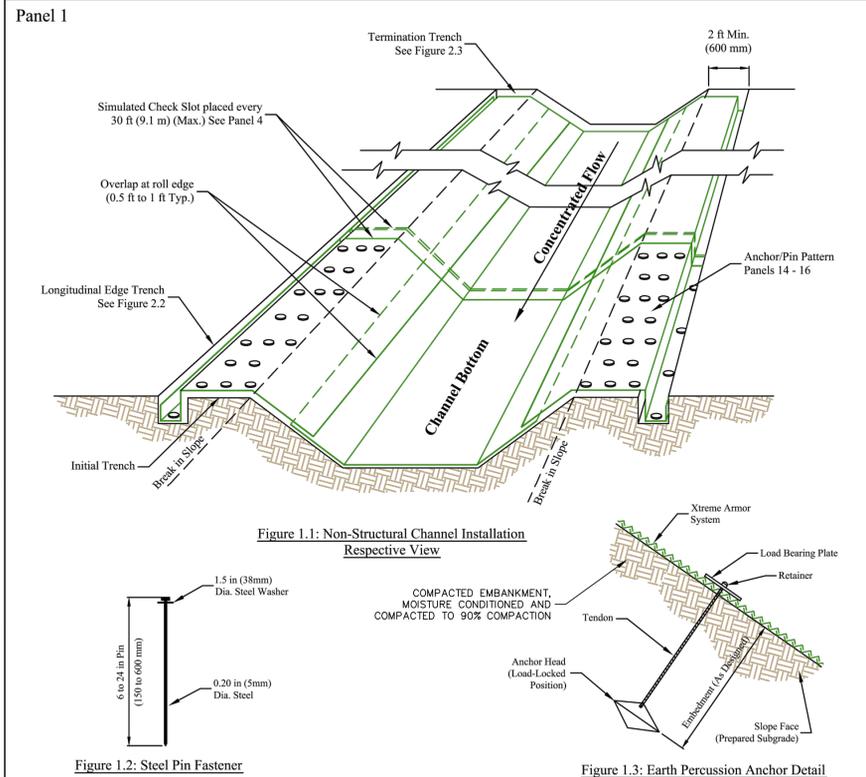


Figure 1.1: Non-Structural Channel Installation Respective View

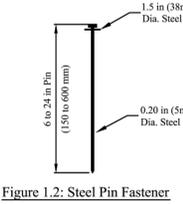


Figure 1.2: Steel Pin Fastener

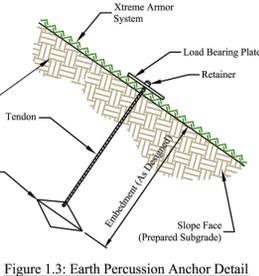


Figure 1.3: Earth Percussion Anchor Detail

**Step 1 - Site Preparation**  
Prepare site to design profile and grade. Remove debris, rocks, clods, etc. Ground surface should be smooth prior to installation to ensure HP-TRM remains in contact with slope.

**Step 2 - Seeding**  
Seeding of site should be conducted to design requirements or to follow local or state seeding requirements as necessary. Seed prior to application of HP-TRM and include necessary soil amendments and fertilizer.

**Step 3 - Pin Selection**  
At a minimum, 12 in. long steel, round pins with a 1.5 in head washer are to be used to secure the HP-TRM to the ground surface. Installation in rocky, sandy or other loose soil may require alternate fasteners. Judgment should be applied by field personnel to ensure the pins provide sufficient pullout resistance and the HP-TRM is in intimate contact with the soil over the entirety of the installation.

**Step 4 - Selection of Anchors**  
Anchor selection is determined by geotechnical conditions and consideration of exposure to the elements. Anchor type and size installed shall be in conformance with requirements supplied within the project specifications.

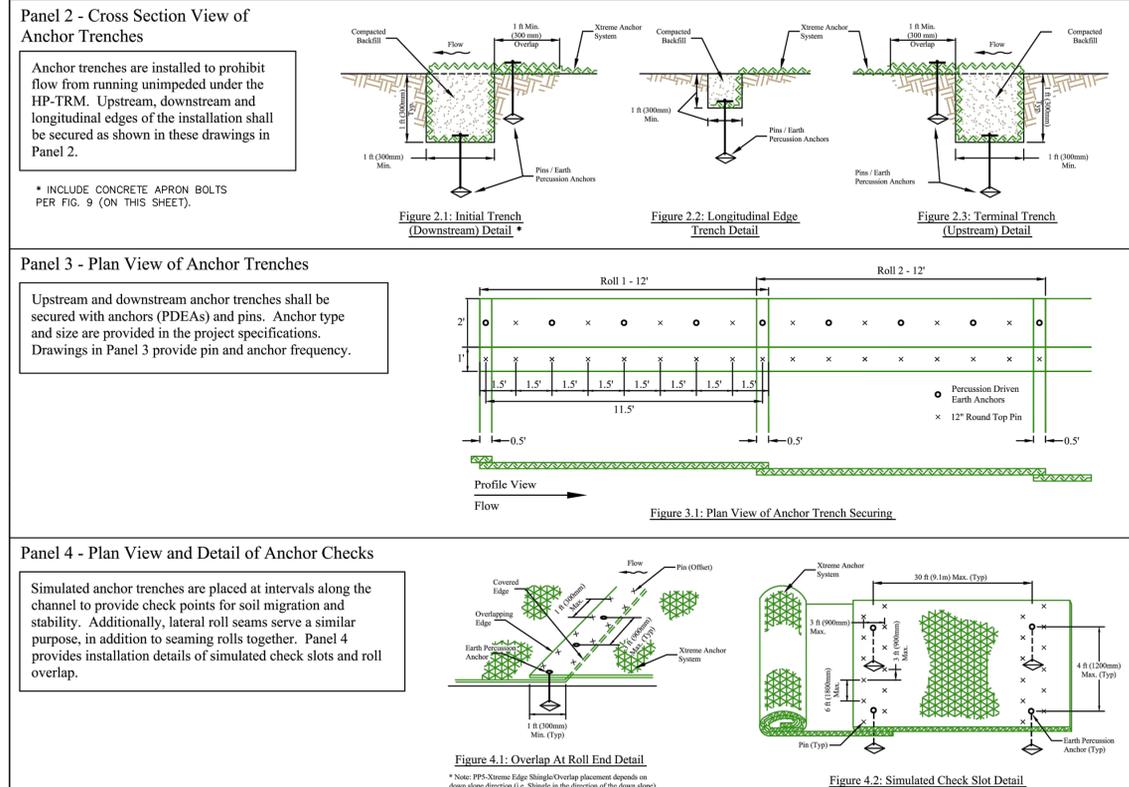
**Step 5 - Excavate Anchor Trench and Secure HP-TRM**  
Excavate a trench along the top of the channel side slopes and the upstream terminal end of the channel to secure the edges of the HP-TRM. The trench should run along the length and width of the installation, be 1 ft. wide and 1 ft. deep. Anchor and pin HP-TRM along bottom of trench, fill with compacted soil, overlap HP-TRM towards toe of slope and secure with row of staples (shown in Figures 2.3 and 3.1).

**Step 6 - Secure Body of HP-TRM**  
Roll HP-TRM down slope from anchor trench. Pin and anchor body of HP-TRM following the pattern shown in appropriate figures (specified by roll width and anchor density pattern). The appropriate anchor density pattern is determined by geotechnical conditions and is presented in the project specifications. Leave end of HP-TRM unsecured to allow for overlap shown in Figure 4.1 and 4.2. Place downstream HP-TRM underneath upstream HP-TRM to form shingle pattern. Secure seam as shown in Figure 4.1 and 4.2. Continue downstream by securing downstream HP-TRM identical to previous rolls.

**Step 7 - Edge Treatments - Complete Installation**  
Secure downstream terminal edge as shown in Figure 2.1 and 3.1. Secure edges of installation with longitudinal anchor trench shown in Figure 2.2. Optionally, at the discretion of the engineer, the product may be seeded on top and soil filled by placing and smoothing top soil in the voids of the HP-TRM, in addition to seeding under the matting.

**Xtreme ARMOR SYSTEM**  
Non-Structural Channel Application  
Standard Drawing, Perspective View  
Provided by Western Excelsior

Updated: 12/19/13  
**WESTERN EXCELSIOR**



**Panel 2 - Cross Section View of Anchor Trenches**  
Anchor trenches are installed to prohibit flow from running unimpeded under the HP-TRM. Upstream, downstream and longitudinal edges of the installation shall be secured as shown in these drawings in Panel 2.

**Panel 3 - Plan View of Anchor Trenches**  
Upstream and downstream anchor trenches shall be secured with anchors (PDEAs) and pins. Anchor type and size are provided in the project specifications. Drawings in Panel 3 provide pin and anchor frequency.

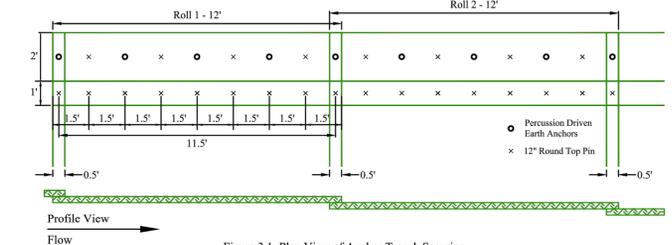


Figure 3.1: Plan View of Anchor Trench Securing

**Panel 4 - Plan View and Detail of Anchor Checks**  
Simulated anchor trenches are placed at intervals along the channel to provide check points for soil migration and stability. Additionally, lateral roll seams serve a similar purpose, in addition to seaming rolls together. Panel 4 provides installation details of simulated check slots and roll overlap.

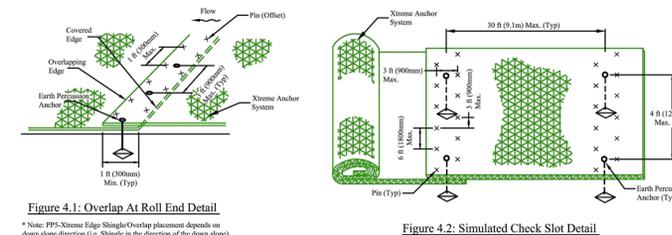
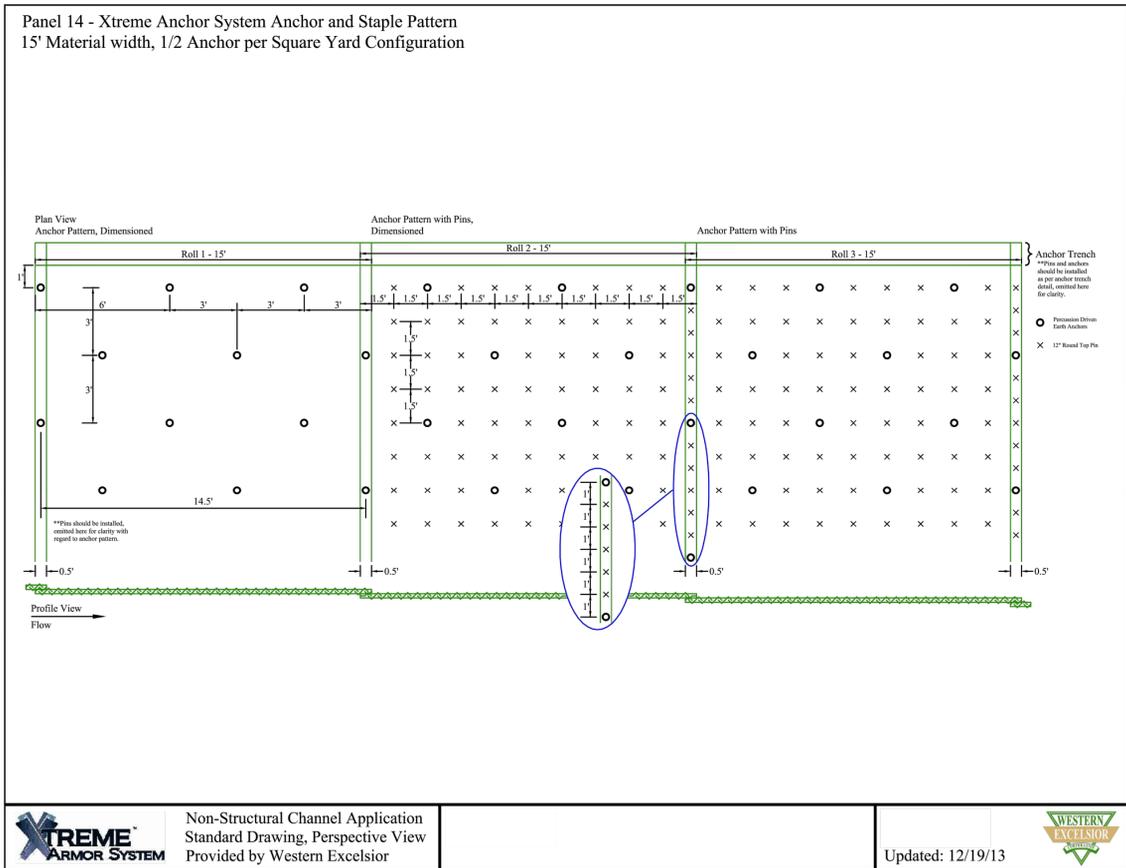


Figure 4.1: Overlap At Roll End Detail

Figure 4.2: Simulated Check Slot Detail

**Xtreme ARMOR SYSTEM**  
Non-Structural Channel Application  
Standard Drawing, Perspective View  
Provided by Western Excelsior

Updated: 12/19/13  
**WESTERN EXCELSIOR**



**Xtreme ARMOR SYSTEM**  
Non-Structural Channel Application  
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Updated: 12/19/13  
**WESTERN EXCELSIOR**

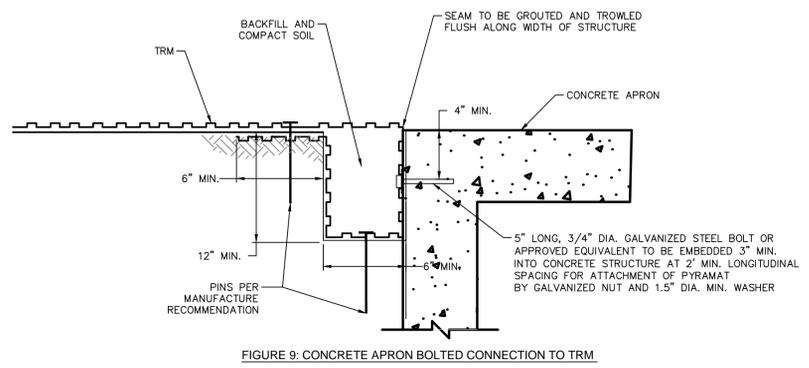


FIGURE 9: CONCRETE APRON BOLTED CONNECTION TO TRM

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