JE FULLER
hydrology • geomorphology

Memorandum

DATE: January 20, 2022

TO: Michael F. Burke
One Scottsdale Core LLC

FROM: Richard Waskowsky, PE
JE Fuller Hydrology & Geomorphology, Inc.

RE: Hydraulic Modeling Assistance for One Scottsdale in Scottsdale, Arizona

1. Introduction

The One Scottsdale project is in Scottsdale, Arizona on the northeast corner of Scottsdale Road and the Loop 101. Refer to project parcels in Figure 1. During the City of Scottsdale's (COS) drainage review of the project, the COS made a comment about how the project is handling off-site flow from the Pinnacle Peak West Area Drainage Master Study (PPW ADMS) (JEF, 2014). Note the PPW discharge results in **Figure 1**. The purpose of this memorandum is to document the hydraulic analyses used to resolve the City's comment.

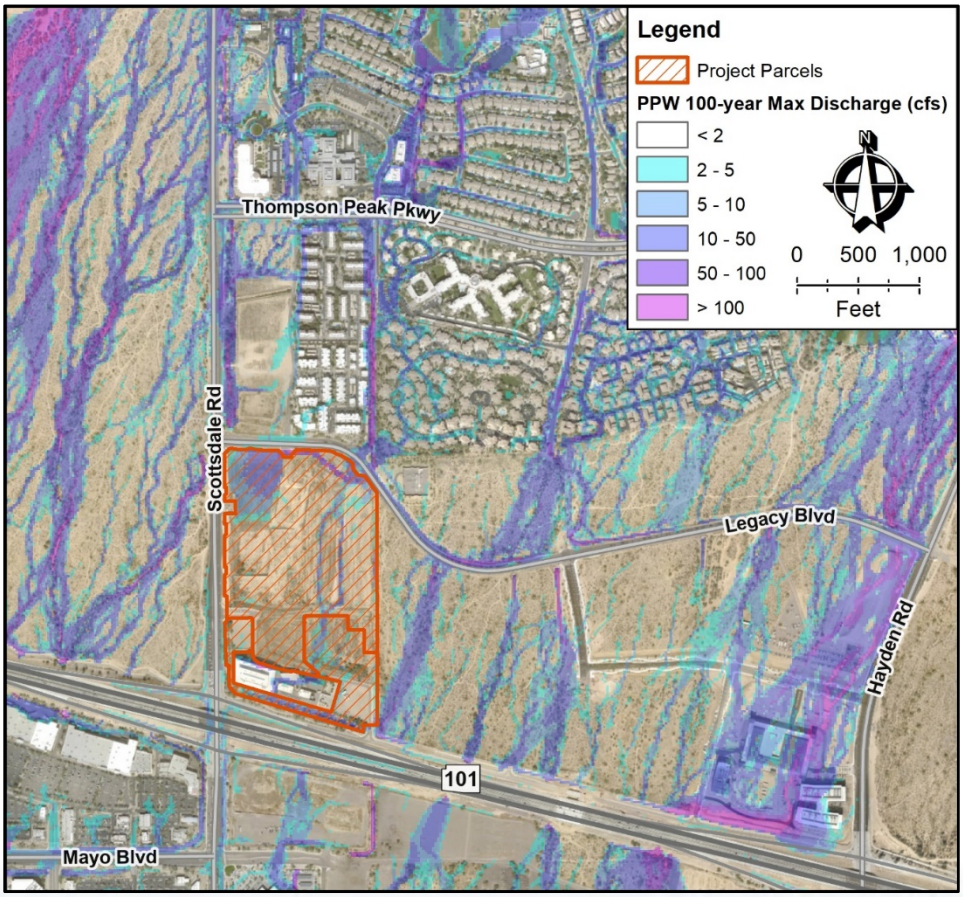


Figure 1. Location of One Scottsdale Project

2. Review of Existing Modeling Studies in the Area

This area of Scottsdale has been extensively studied with two-dimensional modeling since late 2010. The studies in the area are tabulated in the list below along with a brief description, starting with the first study:

- Pinnacle Peak South (PPS) ADMS (TY Lin, 2013) – This analysis had a study area of approximately 40 square miles and used both HEC-1 and FLO-2D to complete the hydrology for the entire area. The FLO-2D software used was version 2009.06 with a Build Number of 09-11.07.06, and the modeling area used a 30-ft grid. This study was prepared for the COS in partnership with the Flood Control District of Maricopa County (FCDMC).
- Pinnacle Peak West ADMS (JEF, 2014) – This study had a total area of approximately 97 square miles, and FLO-2D was used for the entire study except some inflows were from the adjacent PPS FLO-2D modeling and HEC-1 modeling for in the Carefree area. The FLO-2D software used was version PRO with a Build Number of 13.07.05, and the modeling used a 20-ft grid. This study was prepared for the FCDMC in partnership with the COS, the City of Phoenix (COP), and the Arizona State Land Department (ASLD).
- Rawhide Wash Hydrology Conditional Letter of Map Revision (CLOMR) (JEF, 2018) – This study was approximately 14 square miles and was used to redefine the 100-year discharge for Rawhide Wash at the alluvial fan apex. The entire area was modeled with FLO-2D. The FLO-2D software used was version PRO with a Build Number of 16.06.16, and the modeling used a 20-ft grid. The 100-year discharge for the Rawhide Wash apex was approved by FEMA in January 2019. This study was performed for the FCDMC with the COS as a project partner.
- Rawhide Wash Flood Hazard Mitigation (FHM) CLOMR (JEF, 2020) – This CLOMR is part of the ongoing Rawhide Wash FHM Final Design project. The design project's primary goal is to mitigate the flood hazard from Rawhide Wash by designing levees to contain the flow on the reach of Rawhide Wash from its alluvial fan apex to Pinnacle Peak Road. The existing and proposed conditions hydrology for the design was developed with FLO-2D modeling. These hydrology models used a 20-ft grid, and the FLO-2D software used was version PRO with a Build Number of 16.06.16. These models used the same methodologies and procedures from the Rawhide Wash Hydrology CLOMR since this modeling was accepted by FEMA. The design project is being performed for the FCDMC with the COS and the COP as project partners.

The FLO-2D modeling domains in relation to the project site are shown in **Figure 2**.

All the above studies used FLO-2D as a part of the overall analysis. However, different versions were used as the modeling becomes newer. In general, the newer releases of the FLO-2D model are improvements over past versions through performance enhancements or software corrections. Additionally, the FCDMC developed and formalized a review process for new FLO-2D build versions that is documented in the FLO-2D Verification Report (FCDMC, 2016). The version of the FLO-2D software used in the Rawhide studies was tested and approved through the FCDMC approval process. Therefore, since the Rawhide Wash FHM CLOMR existing conditions modeling is the latest modeling that covers the watershed that drains to One Scottsdale, the results from this model will be used to assess the off-site flows affecting One Scottsdale.

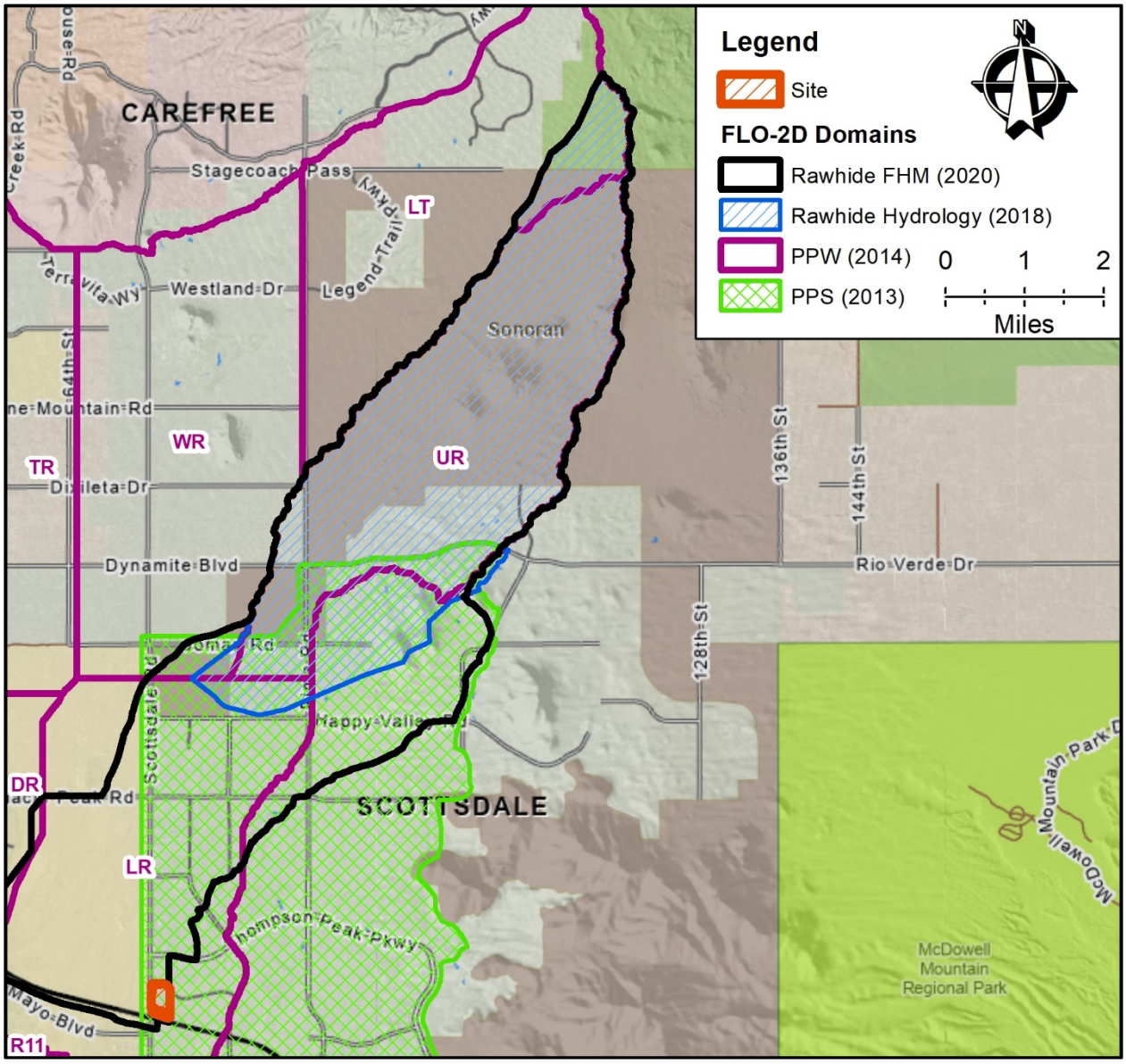


Figure 2. FLO-2D Modeling Domains in Relation to the One Scottsdale Project Site

3. Rawhide Wash FHM CLOMR FLO-2D Model Existing Condition Results

The existing conditions modeling from the Rawhide FHM project was used to analyze off-site flows for the project site for the following reasons:

1. The Rawhide Wash FHM CLOMR modeling is the most current modeling for the area,
2. The City of Scottsdale is a project partner on Rawhide Wash FHM study,
3. This modeling uses the latest procedures outlined in the Drainage Design Manual (DDM) for Maricopa County, Arizona – Hydrology (2018)
4. The entire off-site watershed is contained in one model without relying on inflows from other studies.

While the FHM CLOMR modeling represents the best modeling in the area, there are a few items to note that include:

1) There are significant storm drain improvements on the east side of the One Scottsdale project north of Legacy Boulevard that changed the inflow condition to the two 54-in diameter storm drain pipes along the east side of One Scottsdale south of Legacy Boulevard. Basically, a 60-in diameter storm drain was added from approximately 250-ft south of Thompson Peak Parkway to Legacy Boulevard that took inflows from three 36-in culverts (see **Figure 3**) just south of Thompson Peak Parkway and connected to the two 54-in storm drains in a junction structure. This additional 60-in storm drain has multiple inlet locations. One is a major off-site flow location that is highlighted in **Figure 4**, and, in addition, there grate inlets along its length to capture additional off-site inflows (see **Figure 5**) that bypass the upstream tie-in (**Figure 3**) and the off-site inlet (**Figure 4**) . This 60-in storm drain improvement and the three 36-in pipes have not been modeled in the Rawhide Wash FHM CLOMR modeling.

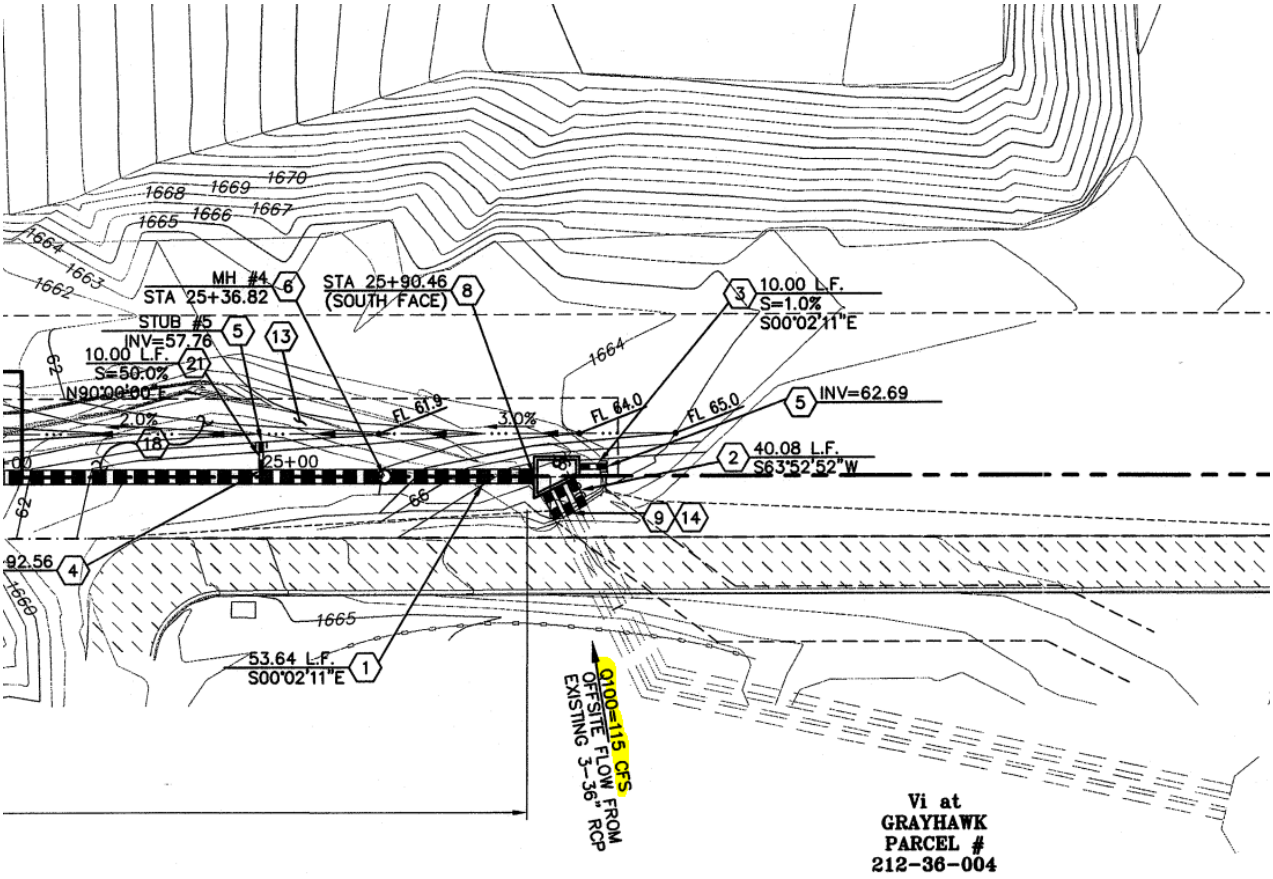


Figure 3. Upstream Tie-in to Three 36-in Pipes (Excerpt from Design Plans)

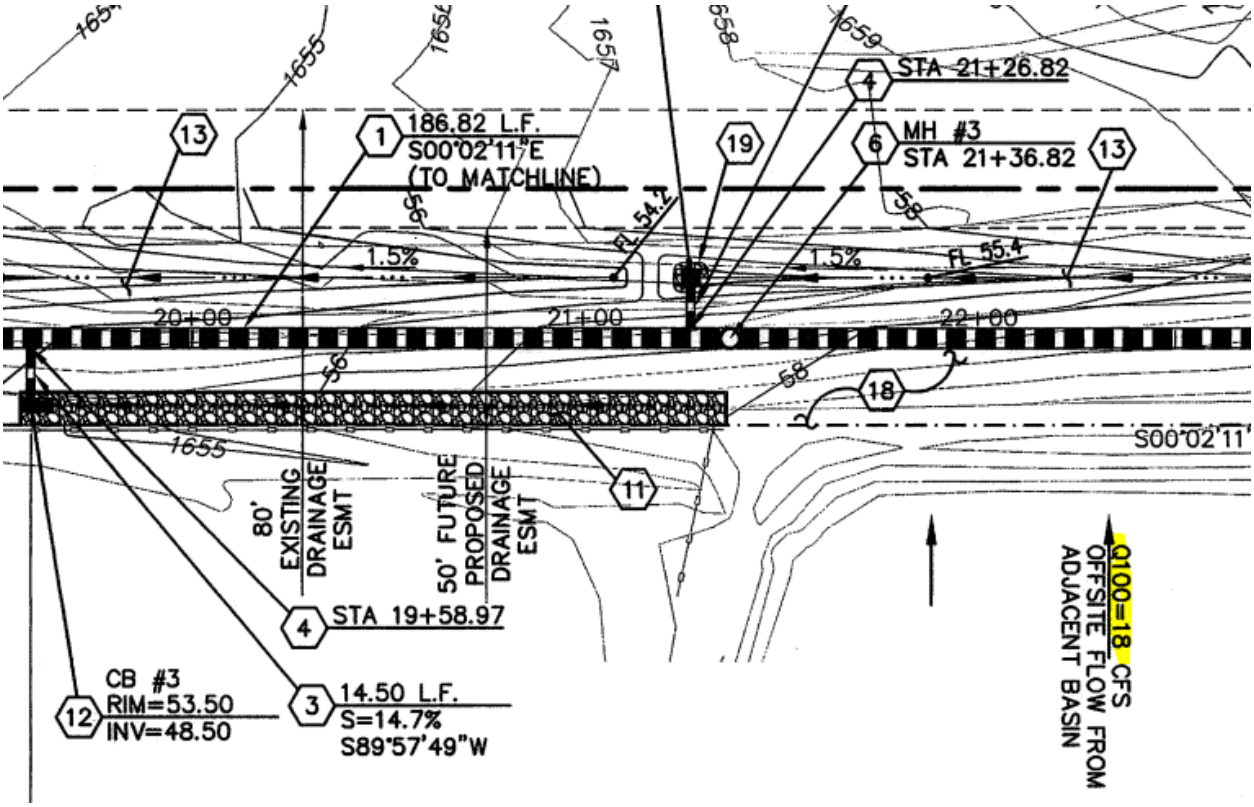


Figure 4. Off-site Inlet Location about 600 ft South of Upstream End (Excerpt from Design Plans)

Figure 5. Typical Grate Inlet along 60-in Storm Drain

2) As shown in **Figure 2**, the modeling domain for the Rawhide Wash FHM CLOMR does not cover the entire upstream watershed that drains to One Scottsdale. This is because the FLO-2D domain was truncated to focus on areas affected by Rawhide Wash for the submittal to FEMA. For the current study, an earlier version of the modeling that covered the entire upstream watershed is used. However, the expanded modeling used the same parameters and procedures as the truncated model. The relationship between the two domains is shown in **Figure 6**.

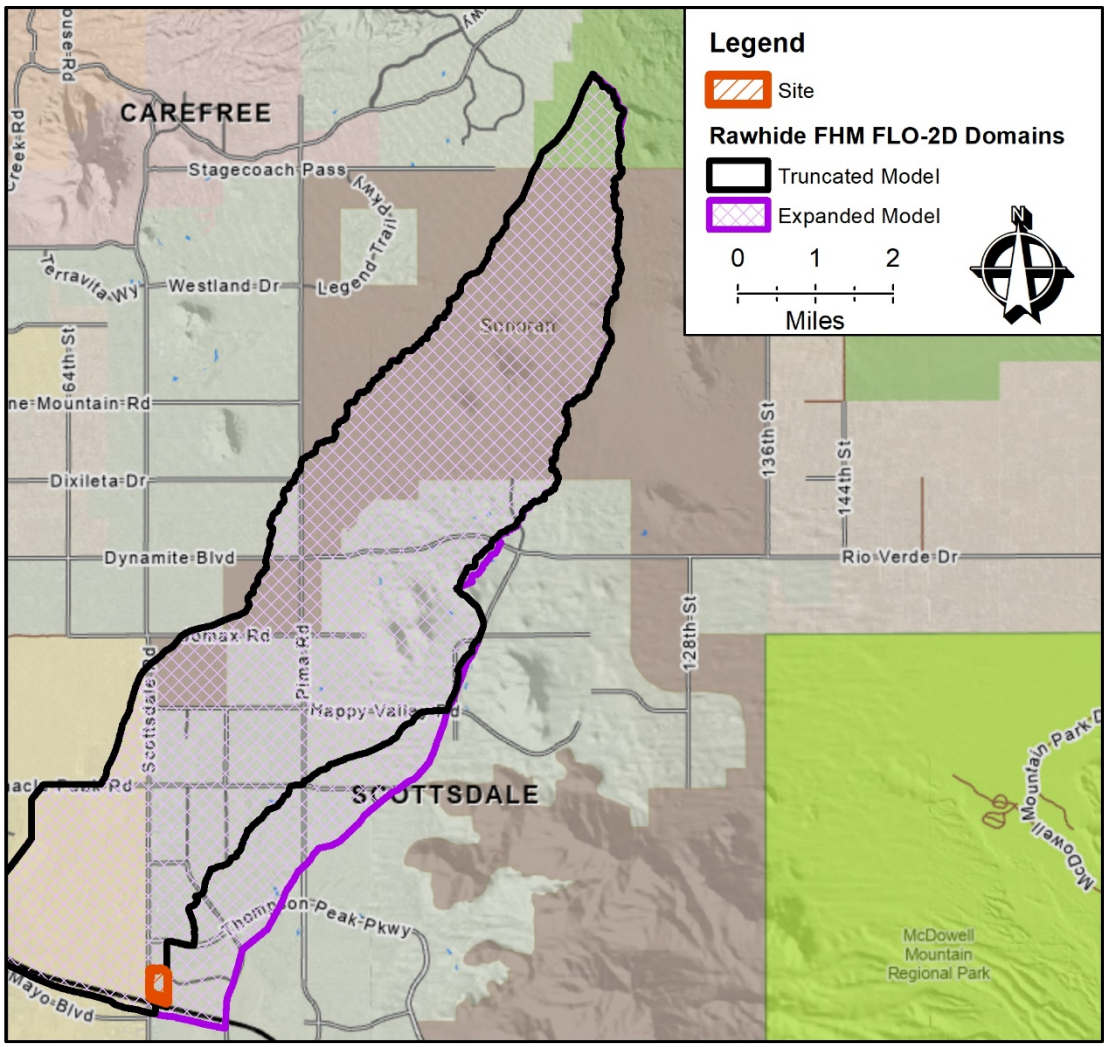


Figure 6. Rawhide FHM FLO-2D Domains shown with One Scottsdale Site

With these two items in mind, the results from the Rawhide FHM CLOMR modeling can be compared with the results from the PPW ADMS. A comparison of the maximum depth results between the two models is shown in **Figure 7**, while a comparison of the maximum discharges is shown in **Figure 8**. It can be seen from both figures that the off-site flows impacting the One Scottsdale site have been greatly reduced with the new modeling. This reduction is driven primarily by the updated infiltration parameters that have been included in the newer modeling based on the procedures formalized in the FCDMC manuals (2016, 2018).

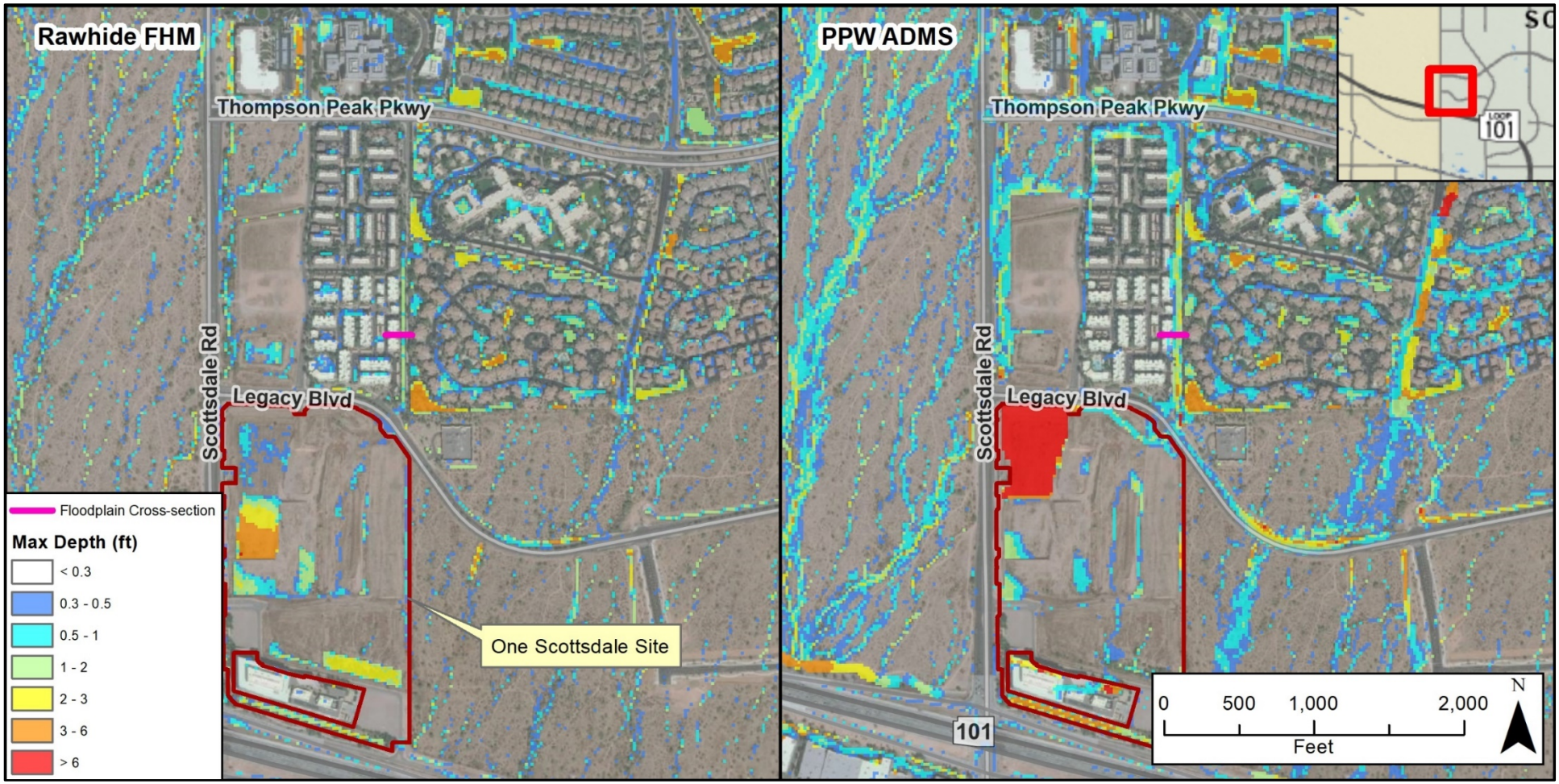


Figure 7. Comparison of Maximum Depth Results near the One Scottsdale Site shown with Location of Relevant FLO-2D Cross-section

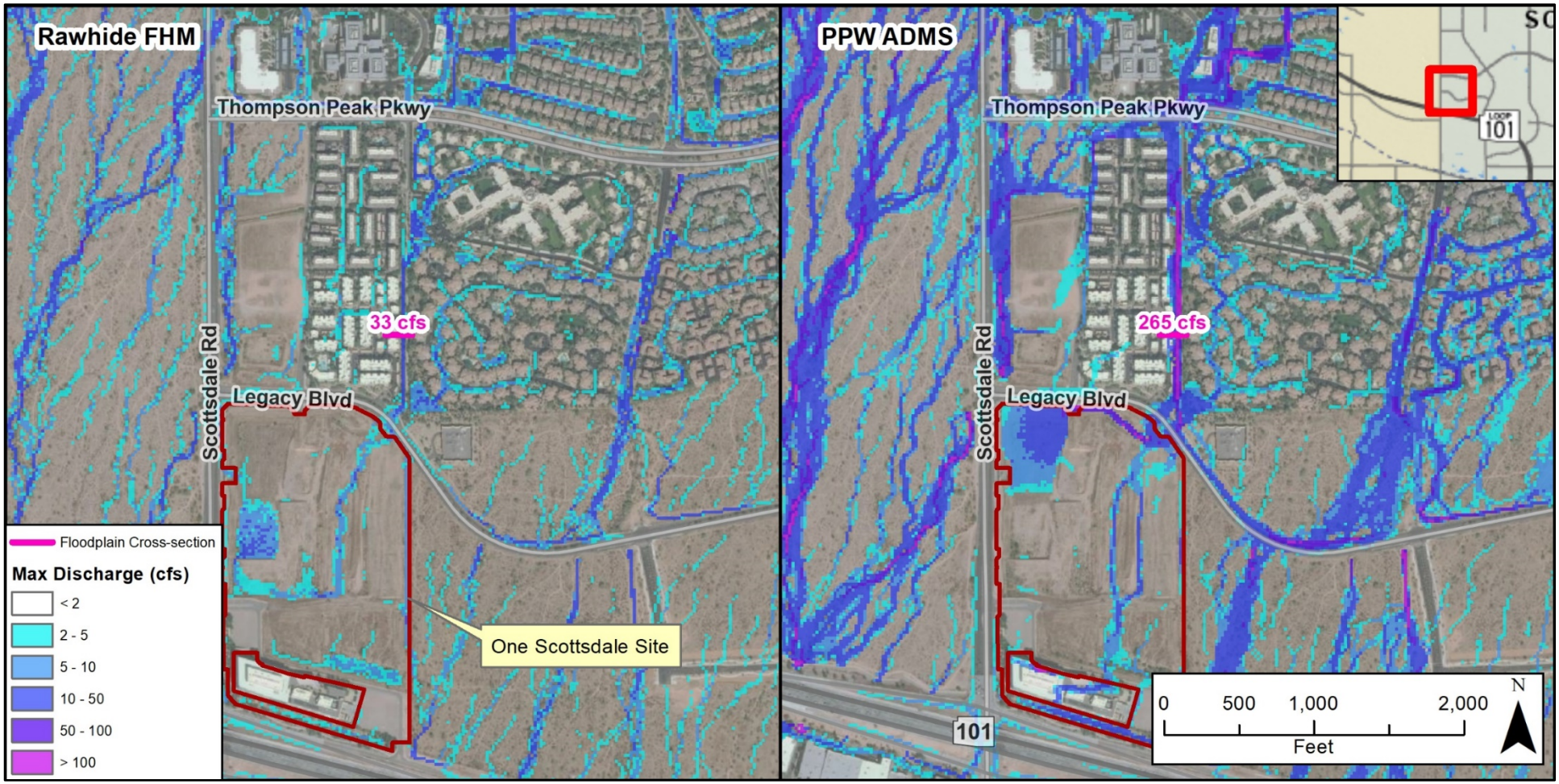


Figure 8. Comparison of Maximum Discharge Results near the One Scottsdale Site shown with Location of Relevant FLO-2D Cross-section

Figure 8 also shows the peak flows at the most relevant FLO-2D floodplain cross-section along the eastern edge of the site. The original PPW ADMS shows a flow of 265 cfs, while the Rawhide FHM modeling shows a peak flow of 33 cfs. The results at other floodplain cross-sections were compared to see if similar reductions were observed across the modeling domain. The other cross-section locations are shown in **Figure 9**. These locations were chosen to give a representative sample of the percent reduction in the upstream watershed when the new modeling is used instead of inflows from the older PPS study. A cross-section on Rawhide Wash was also included to give an example of the reduction that occurs when only the updated infiltration parameters are used (i.e., inflows from PPS have no effect at this location). The comparison of peak flows is shown in **Table 1**.

This comparison shows that, in general, with only the updated infiltration parameters the reduction is about 10%. However, when the effect of the inflows from PPS are included (i.e., the entire watershed is modeled within the same model without inflows), the reduction is about 65%. Finally, when the inflows and the greater effect of the existing infrastructure, the overall reduction in peak flow is about 80-85%.

In summary, with the updated infiltration parameters and complete modeling of the entire upstream watershed, the existing upstream (of the One Scottsdale site) drainage infrastructure is more efficient. Most of the flow is captured in the Deer Valley Road Channel or the drainage infrastructure (channels and basins) with the existing powerline corridor (see **Figure 9**). Most of the upstream watershed is cutoff by this existing infrastructure thereby reducing the flows that affect the site. **Figure 10** is a detailed view of the maximum discharges downstream of this infrastructure that also shows the location of the additional 60-in diameter pipe.

Table 1. Comparison of Peak Flows at Representative Locations

Location	Rawhide		PPW		Reduction (%)
	ID	Peak (cfs)	ID	Peak (cfs)	
Rawhide Wash	20	4583	21	5188	11.7%
North of Deer Valley Rd Channel	23	969	24	2472	60.8%
Deer Valley Rd Channel, West of Hayden Rd	24	943	25	2233	57.8%
Deer Valley Rd Channel, East of Hayden Rd	77	391	78	1135	65.5%
Downstream of Deer Valley Rd Channel near Hayden Alignment	78	444	79	1319	66.4%
Upstream of Site, north of Thompson Peak Pkwy	96	47	97	239	80.3%
Upstream of Site, south of Thompson Peak Pkwy	101	33	102	265	87.6%

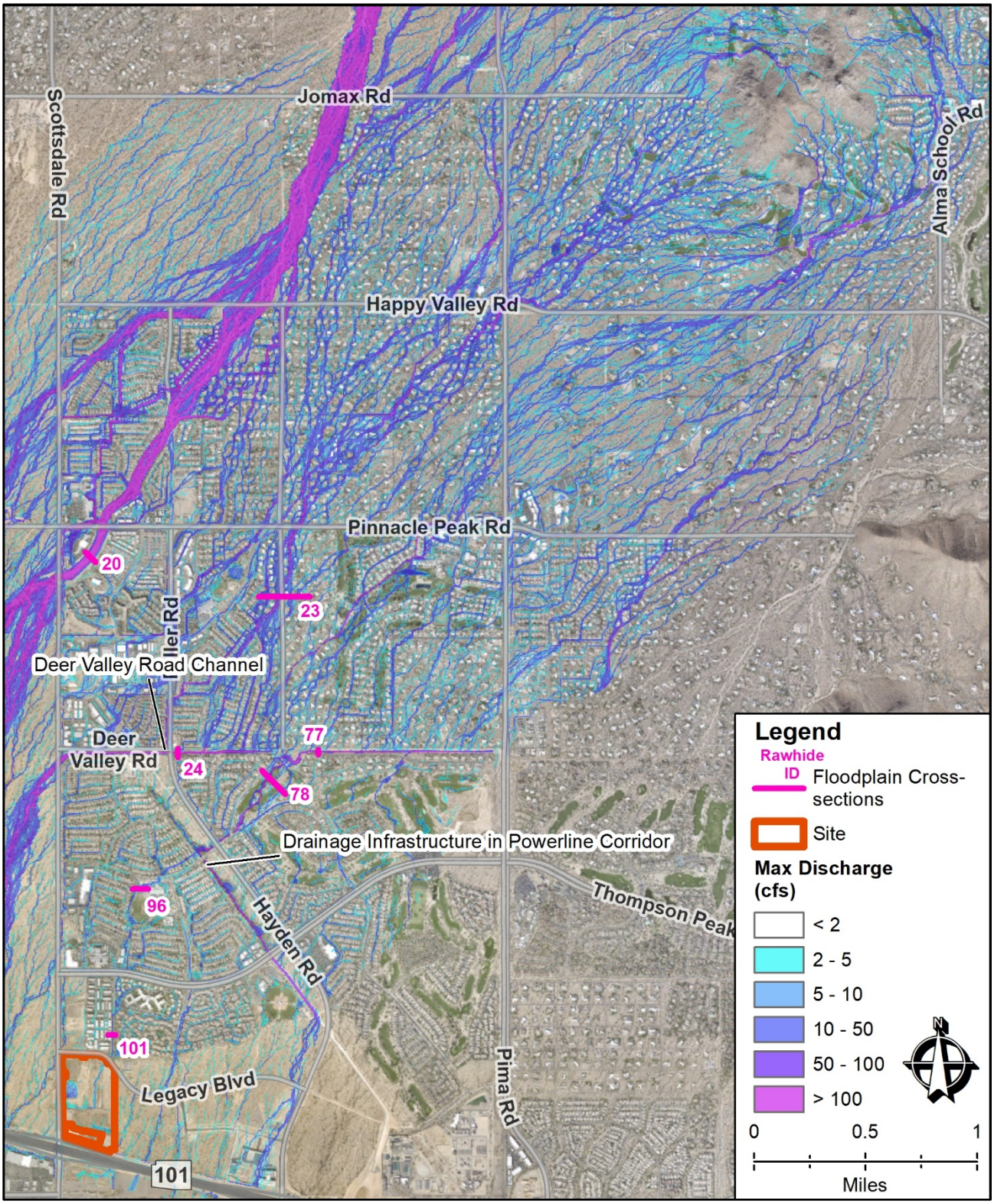


Figure 9. Rawhide FHM Maximum Discharge Results in the Upstream Watershed with Cross-section Locations

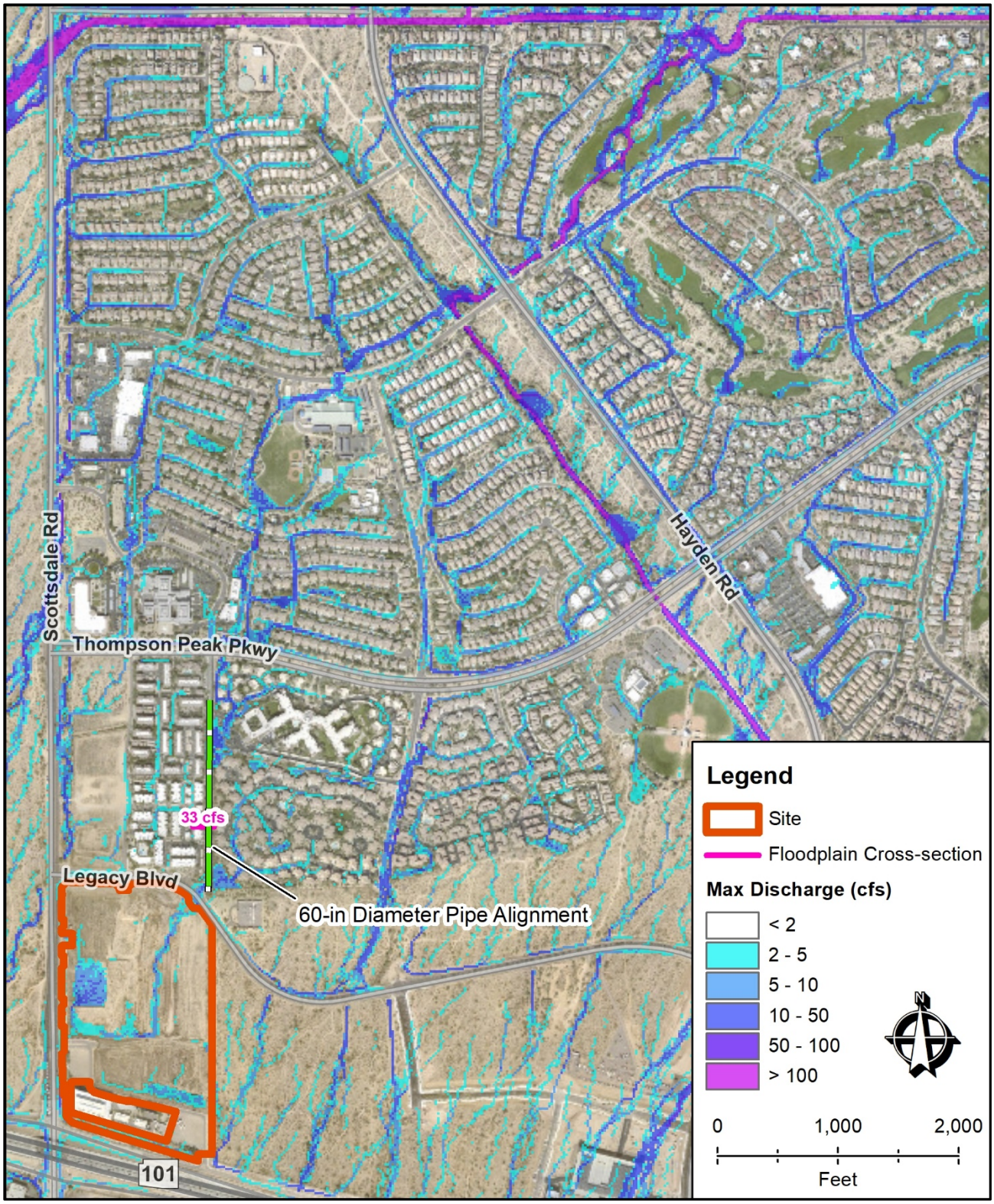


Figure 10. Detailed View of Rawhide FHM Maximum Discharge Results near One Scottsdale Site

Since the more refined modeling indicates that the off-site flows have been reduced to 33 cfs, a normal depth analysis of the 60-in diameter pipe was performed. The results indicate that this magnitude would fill the pipe to approximately 1.84 feet (or 22 inches) of depth. Therefore, since:

1) The pipe had a design capacity much larger than 33 cfs. The pipe design flow rate was 115 cfs at the most northern inlet as highlighted in **Figure 3** and 18 cfs at another location to the south as highlighted in **Figure 4** (see complete design plans included as an attachment),
2) There are three additional grate inlets along the length of the pipe,
3) The pipe was designed for future consideration of on-site flows (note the plugged laterals in the attached design plans) ,
4) And the normal depth analysis indicates that the trunkline has excess capacity,

the existing infrastructure appears adequate for the more refined off-site flows. Additionally, since there are multiple inlet locations, and the pipe was designed for a much larger off-site flow, even if some of the inlets were clogged, there is enough redundancy in the system to account for the 33 cfs of off-site flow.

4. Summary and Conclusion

In summary, this memorandum discussed the following items:

- An overview of the past and current FLO-2D modeling and studies near the One Scottsdale site were reviewed.
- Reasons documenting why the Rawhide Wash FHM CLOMR FLO-2D hydrology modeling represents the latest and best modeling for the area were given.
- The results from the Rawhide Wash FHM CLOMR existing conditions FLO-2D model were presented and compared with the PPW ADMS results near the One Scottsdale site.
- Based on the refined Rawhide Wash FHM modeling, the off-site flow is approximately 33 cfs.
- A normal depth analysis was performed for the 60-in storm drain that indicated there is excess capacity in the pipe.

Based on the latest and most current FLO-2D modeling results, the off-site flow affecting the One Scottsdale project site are approximately 33 cfs, and most of the upstream watershed is cut off by the Deer Valley Road Channel and the drainage infrastructure along the powerline corridor. Since there are many inlets along the length of the pipe and the normal depth analysis indicates that the trunkline has excess capacity, the existing infrastructure appears adequate for the more refined off-site flows. Therefore, although all the inlets and full storm drain system were not explicitly modeled in FLO-2D, the results indicate the no off-site flow would affect the One Scottsdale site.

5. References

Flood Control District of Maricopa County (FCDMC), 2016, Drainage Policies and Standards for Maricopa County, Supplemental Technical Document, FLO-2D Verification Report, May 2016.

Flood Control District of Maricopa County (FCDMC), 2018, Drainage Design Manual for Maricopa County, Arizona - Hydrology, December 2018.

JE Fuller Hydrology & Geomorphology, Inc. (JEF), 2014, Pinnacle Peak West Area Drainage Master Study Hydrology and Hydraulics Technical Support Data Notebook, prepared for the Flood Control District of Maricopa County.

JE Fuller Hydrology & Geomorphology, Inc. (JEF), 2018, Rawhide Wash Conditional Letter of Map Revision, Hydrology, Final, prepared for the Flood Control District of Maricopa County.

JE Fuller Hydrology & Geomorphology, Inc. (JEF), 2020, Rawhide Wash Flood Hazard Mitigation Conditional Letter of Map Revision, prepared for the Flood Control District of Maricopa County. *Currently under review by FEMA*

TY Lin International (TY Lin), 2013, Pinnacle Peak South Area Drainage Master Study, Draft Hydrology and Hydraulics Report Volume 1, prepared for the City of Scottsdale.

6. Attachments

- Rawhide FHM Existing Conditions FLO-2D Model (Digital)
- Design plans of drainage infrastructure on east side of One Scottsdale
- Site Visit Photos
- 5-ft Diameter Normal Depth Model in FHWA Hydraulic Toolbox

Design Plans

ONE SCOTTSDALE
EAST REGIONAL DRAINAGE CORRIDOR IMPROVEMENTS
SCOTTSDALE, ARIZONA

ENGINEERS NOTES

1. MARICOPA ASSOCIATION OF GOVERNMENTS (M.A.G.) UNIFORM STANDARD SPECIFICATIONS AND DETAILS FOR PUBLIC WORKS CONSTRUCTION (LATEST EDITION INCLUDING LATEST REVISION AND CURRENT SUPPLEMENTALS THEREOF PER THE LOCAL TOWN OR CITY) ARE INCORPORATED INTO THIS PLAN IN THEIR ENTIRETY.
2. ALL WORK REQUIRED TO COMPLETE THE CONSTRUCTION COVERED BY THIS PLAN SHALL BE IN ACCORDANCE WITH THE M.A.G. STANDARD SPECIFICATIONS AND DETAILS AND CURRENT SUPPLEMENTS THEREOF PER THE LOCAL CITY OR TOWN UNLESS SPECIFIED OTHERWISE IN THESE PLANS OR ELSEWHERE IN THE CONTRACT DOCUMENTS. CONTRACTORS SHALL FAMILIARIZE THEMSELVES WITH ALL REQUIRED STANDARD SPECIFICATIONS, DETAILS AND SUPPLEMENTS PRIOR TO BIDDING THE WORK FOR THE CONSTRUCTION COVERED BY THIS PLAN.
3. THE CONTRACTOR IS RESPONSIBLE FOR ALL METHODS, SEQUENCING, AND SAFETY CONCERNS ASSOCIATED WITH THIS PROJECT DURING CONSTRUCTION, UNLESS SPECIFICALLY ADDRESSED OTHERWISE IN THIS PLAN OR ELSEWHERE IN THE CONTRACT.
4. THE CONTRACTOR IS TO COMPLY WITH ALL LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS APPLICABLE TO THE CONSTRUCTION COVERED BY THIS PLAN.
5. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND COMPLYING WITH ALL PERMITS REQUIRED TO COMPLETE ALL WORK COVERED BY THIS PLAN.
6. THE QUANTITIES AND SITE CONDITIONS DEPICTED IN THESE PLANS ARE FOR INFORMATIONAL PURPOSES ONLY AND ARE SUBJECT TO ERROR AND OMISSION. CONTRACTORS SHALL SATISFY THEMSELVES AS TO ACTUAL QUANTITIES AND SITE CONDITIONS PRIOR TO BIDDING THE WORK FOR THE CONSTRUCTION COVERED BY THIS PLAN.
7. A REASONABLE EFFORT HAS BEEN MADE TO SHOW THE LOCATIONS OF EXISTING UNDERGROUND FACILITIES AND UTILITIES IN THE CONSTRUCTION AREA. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO UTILITIES AND/OR FACILITIES CAUSED DURING THEIR CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL CALL 48 HOURS IN ADVANCE FOR BLUE STAKE (1-800-STAKE-IT) PRIOR TO ANY EXCAVATION.
8. THE CONTRACTOR IS RESPONSIBLE FOR ALL COORDINATION OF CONSTRUCTION AFFECTING UTILITIES AND THE COORDINATION OF ANY NECESSARY UTILITY RELOCATION WORK.
9. ALL PAVING, GRADING, EXCAVATION, TRENCHING, PIPE BEDDING, CUT FILL AND BACKFILL SHALL COMPLY WITH THE RECOMMENDATIONS SET FORTH IN THE SOILS (GEOTECHNICAL) REPORT FOR THIS PROJECT IN ADDITION TO THE REFERENCED REQUIRED SPECIFICATIONS AND DETAILS. THE CONTRACTOR SHALL BE AWARE THAT CERTAIN UTILITIES REQUIRE PROPER ATTENTION AND CAREFUL PLANNING DURING SITE CONSTRUCTION. PLEASE NOTE THAT UTILITIES ON THESE PLANS MAY NOT EXHIBIT THE FULL PROTECTIVE COVER REQUIRED DURING THE SUBGRADE PREPARATION PHASE OF THE CONSTRUCTION. IN SUCH INSTANCES, THE CONTRACTOR SHALL PROVIDE ADDITIONAL PROTECTION (SUCH AS RAMPING) OR INCREASED PIPE STRENGTH TO PROVIDE THE NECESSARY PROTECTION REQUIRED TO PREVENT DAMAGE DURING THE CONSTRUCTION OF THIS PROJECT. THE CONTRACTOR SHALL HOLD THE ENGINEER HARMLESS IN ALL CASES FOR DAMAGES TO UTILITIES WHERE INADEQUATE PROTECTIVE MEASURES OCCUR.
10. THE CONTRACTOR IS TO VERIFY THE LOCATION AND THE ELEVATIONS OF ALL EXISTING UTILITIES AT POINTS OF TIE-IN PRIOR TO COMMENCING ANY NEW CONSTRUCTION. SHOULD ANY LOCATION OR ELEVATION DIFFER FROM THAT SHOWN ON THESE PLANS, THE CONTRACTOR SHALL CONTACT THE OWNER'S AGENT.
11. CONTRACTOR TO VERIFY AND COORDINATE ALL DIMENSIONS AND SITE LAYOUT WITH ARCHITECT'S FINAL SITE PLAN AND FINAL BUILDING DIMENSIONS BEFORE STARTING WORK. REPORT DISCREPANCIES TO OWNER'S AGENT.
12. COORDINATION BETWEEN ALL PARTIES IS ESSENTIAL PART OF CONTRACT.
13. CONTRACTOR IS RESPONSIBLE FOR PROJECT AND SITE CONDITIONS, AND TO WORK WITH WEATHER CONDITIONS AS THE PROJECT SITE MAY BE LOCATED IN A FLOOD PRONE AREA AND SUBJECT TO FLOODING AND ITS HAZARDS.
14. THE CONTRACTOR IS TO VERIFY THE LOCATION, ELEVATION, CONDITION, AND PAVEMENT CROSS-SLOPE OF ALL EXISTING SURFACES AT POINTS OF TIE-IN AND MATCHING, PRIOR TO COMMENCEMENT OF GRADING, PAVING, CURB AND GUTTER, OR OTHER SURFACE CONSTRUCTION. SHOULD EXISTING LOCATIONS, ELEVATIONS, CONDITION, OR PAVEMENT CROSS-SLOPE DIFFER FROM THAT SHOWN ON THESE PLANS, RESULTING IN THE DESIGN INTENT REFLECTED ON THESE PLANS NOT ABLE TO BE CONSTRUCTED, THE CONTRACTOR SHALL NOTIFY THE OWNER'S AGENT IMMEDIATELY FOR DIRECTION ON HOW TO PROCEED PRIOR TO COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR ACCEPTS RESPONSIBILITY FOR ALL COSTS ASSOCIATED WITH CORRECTIVE ACTION IF THESE PROCEDURES ARE NOT FOLLOWED.
15. CONTRACTOR IS RESPONSIBLE TO COORDINATE UTILITY CROSSINGS AT CULVERT CROSSINGS BEFORE STARTING WORK ON CULVERT. COORDINATE WITH OWNER REPRESENTATIVE. VERIFY UTILITY LINES AND/OR CONDUITS ARE IN PLACE BEFORE STARTING CULVERT WORK.
16. CONSTRUCT RETENTION BASIN AS SHOWN. CONTRACTOR TO SCARIFY BOTTOM OF BASIN TWO FEET DEEP AND NOT ALLOW COMPACTION OVER 80%.
17. THIS PROJECT REQUIRES A REGULAR ONGOING MAINTENANCE PROGRAM FOR THE DESIGNED DRAINAGE SYSTEM(S) TO PRESERVE THE DESIGN INTEGRITY AND THE ABILITY TO PERFORM ITS OPERATIONAL INTENT. FAILURE TO PROVIDE MAINTENANCE WILL JEOPARDIZE THE DRAINAGE SYSTEM(S)' PERFORMANCE AND MAY LEAD TO IT'S INABILITY TO PERFORM PROPERLY AND/OR CAUSE DAMAGE ELSEWHERE IN THE PROJECT.
18. SEWER LINES DESIGNED IN PROFILE AND PUBLIC WATER LINES ARE REQUIRED TO BE ASBUILT AND THE INSTALLATION AND TESTING WITNESSED BY A PROFESSIONAL ENGINEER IN ACCORDANCE WITH ARIZONA ADMINISTRATIVE CODES R18-9-E301 "4.01 GENERAL PERMIT: SEWAGE COLLECTIONS SYSTEMS" AND R18-4-507 AND 508 "APPROVAL OF CONSTRUCTION" AND "RECORD DRAWINGS", RESPECTIVELY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY OWNER 72 HOURS IN ADVANCE WHEN THOSE SYSTEMS ARE READY TO BE WITNESSED.
19. THE WORK PRODUCT PRESENTED IS BELIEVED TO BE COMPLIANT WITH THE INTENT OF THE CURRENT AMERICANS DISABILITIES ACT (ADA) REQUIREMENTS AS INTERPRETED BY THE REVIEWING AGENCY(S). IF CONSTRUCTION OF THE PROJECT IS DELAYED, THIS WORK PRODUCT SHOULD BE UPDATED TO ACCOUNT FOR ANY RELEVANT ADA UPDATES BEFORE CONSTRUCTION BEGINS.
20. THIS PLAN SHOULD BE REVIEWED WITH THE MASTER DRAINAGE REPORT DATED 09-26-06 PREPARED BY WOOD, PATEL & ASSOCIATES.

UTILITY NOTES

1. THESE PLANS HAVE BEEN SUBMITTED TO THE FOLLOWING UTILITY COMPANIES AND THE WORK CONTAINED IN THESE PLANS HAS BEEN APPROVED BY THESE COMPANIES WITHIN THEIR AREA OF INTEREST. THE SIZE AND LOCATIONS, AS SHOWN, OF THE GAS, TELEPHONE AND POWER LINES, AND CONNECTIONS AGREE WITH THE INFORMATION CONTAINED IN THE UTILITY COMPANY RECORDS. WHERE THE WORK TO BE DONE CONFLICTS WITH ANY OF THESE UTILITIES, THE CONFLICTS SHALL BE RESOLVED AS SPECIFIED. CONFLICTS ARISING DURING THE COURSE OF CONSTRUCTION FROM UNFORESEEN CIRCUMSTANCES SHALL BE REPORTED TO THE INTERESTED UTILITY COMPANY AND BE RESOLVED BY THEM AND THE DESIGN ENGINEER AND APPROVED BY THE COS.
2. THE CITY WILL NOT PARTICIPATE IN THE COST OF CONSTRUCTION OR UTILITY RELOCATION.
3. IN ACCORDANCE WITH AAC R18-4-119, ALL MATERIALS ADDED AFTER JANUARY 1, 1993 WHICH MAY COME INTO CONTACT WITH DRINKING WATER SHALL CONFORM TO NATIONAL SANITATION FOUNDATION STANDARDS 60 AND 61.

HAUL ROUTE

HAUL ROUTE PERMITS ARE REQUIRED FOR ANY HAUL OPERATION WHICH UTILIZES CITY RIGHT-OF-WAY WITH A VOLUME EXCEEDING 5,000 C.Y.

SHEET INDEX

GENERAL NOTES

CITY OF SCOTTSDALE GENERAL CONSTRUCTION NOTES FOR PUBLIC WORKS CONSTRUCTION

1. ALL CONSTRUCTION IN THE PUBLIC RIGHT-OF-WAY OR IN EASEMENTS GRANTED FOR PUBLIC USE MUST CONFORM TO THE LATEST MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) UNIFORM STANDARD SPECIFICATIONS AND UNIFORM STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION AS AMENDED BY THE LATEST VERSION OF THE CITY OF SCOTTSDALE (COS) SUPPLEMENTAL STANDARD SPECIFICATIONS AND SUPPLEMENTAL STANDARD DETAILS. IF THERE IS A CONFLICT, THE LATTER SHALL GOVERN.
2. THE ENGINEERING DESIGNS ON THESE PLANS ARE ONLY APPROVED BY THE CITY IN SCOPE AND NOT IN DETAIL. IF CONSTRUCTION QUANTITIES ARE SHOWN ON THESE PLANS, THEY ARE NOT VERIFIED BY THE CITY.
3. APPROVAL OF PLANS IS VALID FOR SIX (6) MONTHS. IF AN ENCROACHMENT PERMIT FOR THE CONSTRUCTION HAS NOT BEEN ISSUED WITHIN SIX MONTHS, THE PLANS SHALL BE RESUBMITTED TO THE CITY FOR RE-APPROVAL.
4. A PUBLIC WORKS INSPECTOR WILL INSPECT ALL WORKS WITHIN THE CITY OF SCOTTSDALE RIGHT-OF-WAY AND IN EASEMENTS. NOTIFY INSPECTION SERVICES 24 HOURS PRIOR TO STARTING OF CONSTRUCTION (TELEPHONE 480-312-5750).
5. WHENEVER EXCAVATION IS TO BE DONE, CALL THE "BLUE STAKE CENTER", 263-1100, TWO WORKING DAYS BEFORE EXCAVATION IS TO BEGIN. THE CENTER WILL SEE THAT THE LOCATION OF THE UNDERGROUND UTILITY LINES I S IDENTIFIED FOR THE PROJECT. CALL "COLLECT" IF NECESSARY.
6. ENCROACHMENT PERMITS ARE REQUIRED FOR ALL WORK IN PUBLIC RIGHTS-OF-WAY AND EASEMENTS GRANTED FOR PUBLIC PURPOSES. AN ENCROACHMENT PERMIT WILL BE ISSUED BY THE CITY UPON RECEIPT OF PAYMENT OF A BASE FEE PLUS A FEE FOR INSPECTION SERVICES TO BE PROVIDED BY THE CITY. COPIES OF ALL PERMITS SHALL BE RETAINED ONSITE AND SHALL BE AVAILABLE FOR INSPECTION AT ALL TIMES. FAILURE TO PRODUCE THE REQUIRED PERMITS WILL RESULT IN IMMEDIATE WORK STOPPAGE UNTIL THE PROPER PERMIT DOCUMENTATION IS OBTAINED.
7. ALL EXCAVATION AND GRADING WHICH IS NOT IN THE PUBLIC RIGHTS-OF-WAY OR NOT IN EASEMENTS GRANTED FOR PUBLIC USE MUST CONFORM TO CHAPTER 70, EXCAVATION AND GRADING, OF THE LATEST EDITION OF THE UNIFORM BUILDING CODE PREPARED BY THE INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS. A PERMIT FOR THIS GRADING MUST BE SECURED FROM THE CITY FOR A FEE ESTABLISHED BY THE UNIFORM BUILDING CODE.

INDEMNITY

1. CITY OF SCOTTSDALE WILL NOT BE RESPONSIBLE FOR REMOVAL, REPAIR, OR REPLACEMENT OF SIDEWALKS, LANDSCAPING OR ANY OTHER IMPROVEMENTS LOCATED WITHIN CITY EASEMENT(S) AS A RESULT OF ACCESS TO MAINTENANCE OF, OR REPAIRS TO THE WATERLINE SHOWN ON THESE PLANS.
2. CITY OF SCOTTSDALE WILL NOT BE RESPONSIBLE FOR REMOVAL, REPAIR, OR REPLACEMENT OF THE RETAINING WALLS OR OTHER IMPROVEMENTS WITHIN CITY EASEMENT(S) AS A RESULT OF ACCESS TO, MAINTENANCE OF, OR REPAIRS TO THE RETAINING WALLS SURROUNDING THE DETENTION BASINS SHOWN ON THESE PLANS.

"THE ENGINEER OF RECORD ON THESE PLANS HAS RECEIVED A COPY OF THE APPROVED STIPULATIONS FOR THIS PROJECT AND HAS DESIGNED THESE PLANS IN CONFORMANCE WITH THE APPROVED STIPULATIONS."

ENGINEER: LISA L. CRANE, P.E.

NOTE:

STORM DRAIN PIPE MATERIAL NOT YET FINALIZED. H.D.P.E. BEING CONSIDERED.

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE " AS-BUILT " LOCATIONS SHOWN HEREON WERE PERFORMED UNDER MY SUPERVISION, AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

LAND SURVEY DATA

E/W STREET ALIGN	BEARDSLEY ROAD		
N/S STREET	SCOTTSDALE ROAD ALIGN		
DESCRIPTION	MC BC HH, N. BOUND LANE, DOWN 0.6'		
TOWNSHIP	4N	RANGE	4E
SEC	26	DATE UPDATED	NA
COR	NW		
NORTHING (f)	15,283.524	EASTING (f)	27,356.033
NAVD '88 ELEV (f)	1.662.878		

BENCHMARK AND TOPO SOURCE

ALL TOPOGRAPHY WAS OBTAINED FROM AERIAL MAPPING COMPANY. INC., PROJECT NUMBER 04134, FLIGHT DATE JUNE 26, 2004

I HEREBY CERTIFY THAT ALL ELEVATIONS REPRESENTED ON THIS PLAN ARE BASED ON THE ELEVATION DATUM FOR THE CITY OF SCOTTSDALE BENCHMARK PROVIDED ABOVE.

CITY OF SCOTTSDALE
REVIEW & RECOMMENDED APPROVAL BY:

FIRE DEPT	N/A	GRADING & DRAINAGE	Ajiz E. Helal 10-23-07
PLANNING	10/23/07	WATER & SEWER	N/A
TRAFFIC	N/A	PAVING	N/A
STRUCTURAL	Ajiz E. Helal 10-23-07	RET. WALL	Ajiz E. Helal 10-23-07

APPROVED BY:

ENGINEERING COORDINATOR MANAGER OR DESIGNEE — DATE: 10/23/07

NO CONFLICT SIGNATURE BLOCK

UTILITY	UTILITY COMPANY	NAME OF COMPANY REPRESENTATIVE	TELEPHONE NUMBER	DATE SENT
WATER	CITY OF SCOTTSDALE	CITY OF SCOTTSDALE	N/A	N\A
SANITARY SEWER	CITY OF SCOTTSDALE	CITY OF SCOTTSDALE	N/A	N\A
ELECTRIC	A.P.S.	BARBARA HEIMER	602-371-6688	02-13-07
TELEPHONE	QWEST COMM.	CONFLICT LIAISON DEPT.	602-630-0496	02-13-07
NATURAL GAS	SOUTHWEST GAS CORP.	POM JINTASAWANG	602-749-8550	02-13-07
CABLE TV	COX CABLE	THANH DOAN	623-322-7086	02-13-07
OTHER	-	-	-	-
OTHER	-	-	-	-

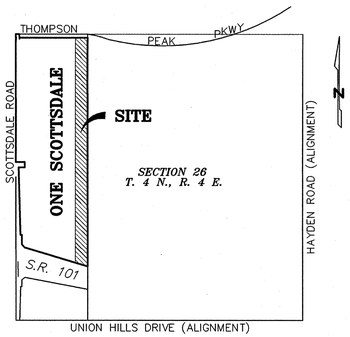
ENGINEER'S CERTIFICATION:

I, LISA L. CRANE, P.E., BEING THE PERSON RESPONSIBLE FOR DESIGNING THE FACILITIES NECESSARY TO SERVE THIS DEVELOPMENT, HEREBY CERTIFY THAT ALL OF THE UTILITY COMPANIES LISTED ABOVE, HAVE REVIEWED THIS PROJECT PROPOSAL AND ALL CONFLICTS HAVE BEEN RESOLVED AT THIS POINT. "NO CONFLICTS" FORMS HAVE BEEN OBTAINED FROM EACH UTILITY COMPANY AND ARE INCLUDED IN THIS SUBMITTAL. I ALSO CERTIFY THAT ALL ONSITE TRANSFORMERS, CABLE BOXES AND ANY OTHER PUBLIC/PRIVATE UTILITY APPURTENANCES ARE PLACED SUCH THAT THEY DO NOT NEGATIVELY IMPACT THE USE OR INTENDED USE OF ANY DEDICATED EASEMENTS OR FACILITIES DEVELOPED WITH THIS PROJECT INCLUDING BUT NOT LIMITED TO STORMWATER STORAGE BASINS, SIGHT DISTANCE EASEMENTS AND NAOS OR OTHER OPEN SPACE EASEMENTS.

SIGNATURE — DATE: 10/23/07

FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

COMMUNITY NUMBER	PANEL NUMBER	SUFFIX	DATE OF FIRM	FIRM ZONE	BASE FLOOD ELEVATION (IN AO ZONE, USE DEPTH)
045012	1245	G	SEPT. 30, 2005	AO	1'



VICINITY MAP
N.T.S.

OWNER / DEVELOPER

ONE SCOTTSDALE HOLDINGS LLC.
7600 E. DOUBLETREE RANCH RD. SUITE 300
SCOTTSDALE, AZ 85258
CONTACT: MR. ART NEHF
TEL.:(480) 367-7000
FAX (480) 367-7558

ENGINEER

WOOD, PATEL & ASSOCIATES INC.
2051 WEST NORTHERN, SUITE 100
PHOENIX, ARIZONA 85021
CONTACT: LISA L. CRANE, P.E.
(602) 335-8500
(FAX) 335-8580

EARTHWORK QUANTITIES

QUANTITIES ARE IN PLACE ESTIMATES. VOLUME OF CUT FOR UNDERGROUND STORAGE IS INCLUDED. NO SHRINK OR SWELL IS ASSUMED.

DESCRIPTION	QUANTITY
CUT	14,305 C.Y.
FILL	187 C.Y.

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(602) 335-8500

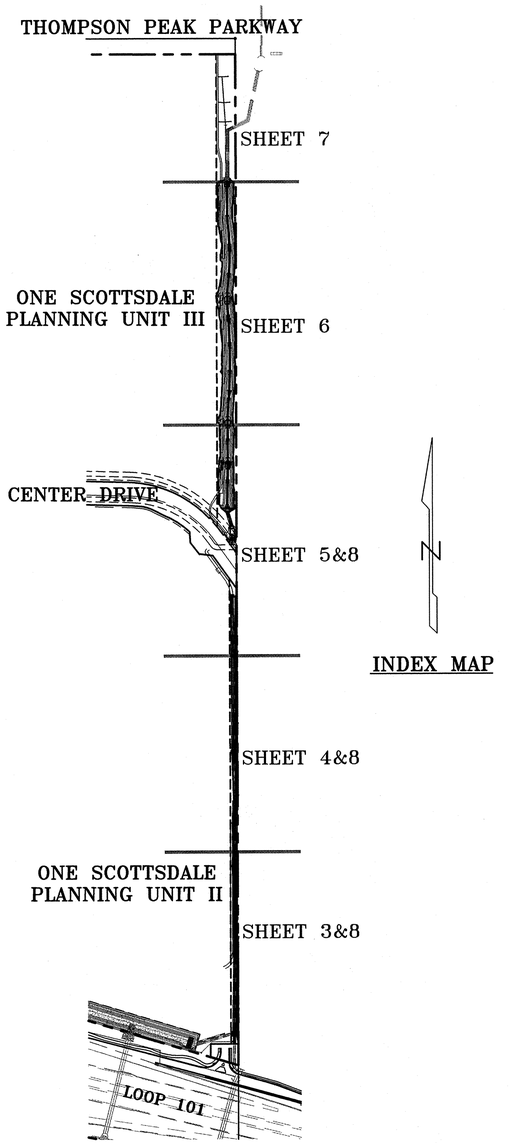
ONE SCOTTSDALE
EAST REGIONAL DRAINAGE CORRIDOR IMPROVEMENTS
SCOTTSDALE, ARIZONA

1-DR-2006 ZN# 20-ZN-2002 #2 PLAN CHECK# 6787-06-1 Q.S.# 39-45
S.A.# 396-SA-2006 S.N.P. 20-ZN-2002 54-NP-2006 D.R.# 1-DR-2006

Registered Professional Engineer (Civil) CERTIFICATE NO. 44687 LISA L. CRANE Date Signed 10/23/07 ARIZONA, U.S.A.

DRAWN	YLJ
CHECKED	SAA
DATE	09 AUGUST 2007
SCALE	1"=40'
JOB NO.	021584.14
SHEET	1 OF 11

S:\2002\021584.14\Dwg\Imp\East Corridor_021584-14-01CVR.dwg



INDEX MAP

LEGEND

1337	PROPOSED CONTOUR
1337	EXISTING CONTOUR
	PROPOSED RIGHT OF WAY
	ROADWAY CENTERLINE
	VERTICAL CURB & GUTTER
	EXISTING CURB AND GUTTER
INV 34.0	PROPOSED INVERT ELEVATION
TC 13.37	TOP OF CURB ELEVATION (FROM TOPO)
GE 13.37	GUTTER ELEVATION (FROM TOPO)
NG 13.37	NATURAL GROUND ELEVATION (FROM TOPO)
CBC	CONCRETE BOX CULVERT
R/W	RIGHT OF WAY
HW	HIGH WATER
BOT	BOTTOM
INV	INVERT
SD	STORM DRAIN
TYP	TYPICAL
EG	EXISTING GROUND
ELEV	ELEVATION
	PROPOSED STAND PIPE
	EXISTING STORM DRAIN
	PROPOSED STORM DRAIN AND MANHOLE
	FIRE HYDRANT
	WATER PIPE AND VALVE
	SANITARY SEWER PIPE AND MANHOLE
	PROPOSED PAVEMENT
	EXISTING PAVEMENT
	FLOWLINE
Q_{100}=5 cfs V_{100}=0.5 ft/s	EXISTING OFFSITE PEAK FLOW & PEAK VELOCITY (100 YEAR)
	MISCELLANEOUS UTILITIES
	EXISTING STREET LIGHT
	EXISITING TRAFFIC SIGNAL
	EXISITNG SIGN

QUANTITY SUMMARY (ESTIMATED)

ITEM #	DESCRIPTION	TOTAL
1	54" RGRCP CLASS III	4042 LF
2	STORM DRAIN MANHOLE MAG 521 & 522	14 EA
3	CATCH BASIN MAG 535 TYPE "F"	2 EA
4	STORM DRAIN PIPE CONNECTION MAG 524	2 EA
5	CONCRETE DROP STRUCTURE	1 EA
6	RIP-RAP TYPE I ANGULAR	1424 CY
7	CHANNEL DROP STRUCTURE	3 EA
8	TRAIL	3829 LF
9	DIVERSION STRUCTURE	1 EA
10	48" RGRCP CLASS III	34 LF

LEGAL DESCRIPTION

THE WEST HALF OF THE WEST HALF OF SECTION 26, TOWNSHIP 4 NORTH, RANGE 4 EAST OF THE GILA AND
SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA;

EXCEPT THE NORTH 100 FEET OF THE WEST 165 FEET OF THAT PART OF THE NORTHWEST QUARTER OF SECTION 26, TOWNSHIP 4 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, LYING SOUTH OF AND ADJOINING A STRAIGHT LINE DRAWN AT A RIGHT ANGLE FROM A POINT ON THE WEST LINE OF SAID NORTHWEST QUARTER OF SAID SECTION 26, SAID POINT BEING 2367.00 FEET SOUTH OF THE NORTHWEST CORNER OF SAID SECTION 26; AND ALSO

EXCEPT THAT PORTION OF THE WEST HALF OF THE WEST HALF OF SECTION 26, TOWNSHIP 4 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, WHICH LIES WITHIN THE PARCEL OF LAND DESCRIBED AS FOLLOWS:

BEGINNING AT A UNITED STATES GENERAL LAND OFFICE BRASS CAP MARKING THE SOUTHWEST CORNER OF SAID SECTION 26; THENCE ALONG THE WEST LINE OF SAID SECTION 26, NORTH 0 DEGREES 02 MINUTES 06 SECONDS WEST, 2642.06 FEET TO A MARICOPA COUNTY HIGHWAY DEPARTMENT BRASS CAP MARKING THE WEST QUARTER CORNER OF SAID SECTION 26; THENCE CONTINUING ALONG SAID WEST LINE, NORTH 0 DEGREES 02 MINUTES 06 SECONDS WEST 170.94 FEET TO A POINT 2467.00 FEET SOUTH OF THE NORTHWEST CORNER OF SAID SECTION 26; THENCE LEAVING SAID WEST LINE, NORTH 89 DEGREES 57 MINUTES 54 SECONDS EAST 52.30 FEET TO A POINT HEREINAFTER CALLED POINT "A";
THENCE SOUTH 01 DEGREES 32 MINUTES 53 SECONDS EAST, 1238.42 FEET TO A POINT HEREINAFTER CALLED POINT "B";
THENCE NORTH 89 DEGREES 57 MINUTES 54 SECONDS EAST, 25.00 FEET TO A LINE PARALLEL WITH AND
110.00 FEET EAST OF THE WEST LINE OF SAID SECTION 26;
THENCE ALONG SAID PARALLEL LINE, SOUTH 0 DEGREES 02 MINUTES 06 SECONDS EAST, 175.00 FEET;
THENCE SOUTH 42 DEGREES 29 MINUTES 44 SECONDS EAST, 74.07 FEET;
THENCE SOUTH 73 DEGREES 12 MINUTES 54 SECONDS EAST, 1212.44 FEET TO THE EAST LINE OF SAID WEST HALF OF THE WEST HALF;
THENCE ALONG SAID EAST LINE, SOUTH 0 DEGREES 01 MINUTES 50 SECONDS EAST, 421.96 FEET;
THENCE NORTH 79 DEGREES 08 MINUTES 01 SECONDS WEST, 1176.82 FEET;
THENCE SOUTH 50 DEGREES 34 MINUTES 39 SECONDS WEST, 71.10 FEET TO A LINE PARALLEL WITH AND 110.00 FEET EAST OF THE WEST LINE OF SAID SECTION 26;
THENCE ALONG SAID PARALLEL LINE, SOUTH 0 DEGREES 02 MINUTES 06 SECONDS EAST, 125.00 FEET;
THENCE SOUTH 89 DEGREES 57 MINUTES 54 SECONDS WEST, 25.00 FEET TO A POINT HEREINAFTER CALLED POINT "C";
THENCE SOUTH 01 DEGREES 28 MINUTES 41 SECONDS WEST, 625.30 FEET TO THE SOUTH LINE OF SAID SECTION 26 AND TO A POINT HEREINAFTER CALLED POINT "D";
THENCE ALONG SAID SOUTH LINE, NORTH 89 DEGREES 58 MINUTES 35 SECONDS WEST, 68.49 FEET TO THE POINT OF BEGINNING; AND ALSO

EXCEPT THAT PORTION OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SAID SECTION 26,
DESCRIBED AS FOLLOWS:

COMMENCING AT A UNITED STATES GENERAL LAND OFFICE BRASS CAP MARKING THE SOUTHWEST CORNER
OF SAID SECTION 26, BEING NORTH 89 DEGREES 58 MINUTES 35 SECONDS WEST 2641.00 FEET FROM A 3/4 INCH REBAR MARKING THE SOUTH QUARTER CORNER OF SAID SECTION 26;
THENCE ALONG THE WEST LINE OF SAID SECTION 26, NORTH 0 DEGREES 02 MINUTES 26 SECONDS WEST 625.01 FEET TO A POINT BEING SOUTH 0 DEGREES 02 MINUTES 26 SECONDS EAST 2015.76 FEET FROM THE MARICOPA COUNTY HIGHWAY BRASS CAP MARKING THE WEST QUARTER CORNER OF SAID SECTION 26;
THENCE NORTH 89 DEGREES 57 MINUTES 34 SECONDS EAST 110.00 FEET TO THE POINT OF BEGINNING ON THE SOUTHERLY RIGHT OF WAY LINE OF STATE ROUTE 101L (PIMA FREEWAY);
THENCE ALONG SAID SOUTHERLY RIGHT OF WAY LINE, SOUTH 89 DEGREES 57 MINUTES 54 SECONDS WEST
25.00 FEET;
THENCE CONTINUING ALONG SAID SOUTHERLY RIGHT OF WAY LINE, SOUTH 01 DEGREES 28 MINUTES 41 SECONDS WEST 50.00 FEET;
THENCE NORTH 27 DEGREES 44 MINUTES 09 SECONDS EAST 56.49 FEET TO THE POINT OF BEGINNING; AND ALSO

EXCEPT A PARCEL OF LAND LYING WITHIN SAID SECTION 26, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWEST CORNER OF SAID SECTION 26;
THENCE ALONG THE SOUTH LINE OF SAID SECTION, SOUTH 89 DEGREES 58 MINUTES 26 SECONDS EAST, A DISTANCE OF 68.49 FEET TO THE EASTERLY LINE OF PARCEL NO. 7-5398, TRACT NO. 1, AS RECORDED
IN INSTRUMENT NO. 2002-0294002, AND THE POINT OF BEGINNING;
THENCE LEAVING SAID SOUTH LINE ALONG SAID EASTERLY LINE, NORTH 01 DEGREES 28 MINUTES 38 SECONDS EAST, A DISTANCE OF 625.29 FEET;
THENCE NORTH 89 DEGREES 57 MINUTES 52 SECONDS EAST, A DISTANCE OF 25.00 FEET;
THENCE NORTH 00 DEGREES 02 MINUTES 08 SECONDS WEST, A DISTANCE OF 124.88 FEET;
THENCE NORTH 50 DEGREES 34 MINUTES 37 SECONDS EAST, A DISTANCE OF 71.10 FEET;
THENCE SOUTH 79 DEGREES 08 MINUTES 03 SECONDS EAST, A DISTANCE OF 1176.65 FEET TO THE EAST
LINE OF THE WEST HALF OF THE WEST HALF OF SAID SECTION 26;
THENCE LEAVING SAID EASTERLY LINE ALONG SAID EAST LINE, SOUTH 00 DEGREES 02 MINUTES 11 SECONDS EAST, A DISTANCE OF 573.88 FEET TO THE SOUTH LINE OF SAID SECTION;
THENCE LEAVING SAID EAST LINE ALONG SAID SOUTH LINE, NORTH 89 DEGREES 58 MINUTES 26 SECONDS
WEST, A DISTANCE OF 1251.89 FEET TO THE POINT OF BEGINNING.

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ONE SCOTTSDALE
EAST REGIONAL DRAINAGE CORRIDOR IMPROVEMENTS
SCOTTSDALE, ARIZONA

S.A.# 396-SA-2006 S.A.# 280-SA-2006 54-N.P.-2006 D.R.# 1-DR-2006 ZN# 20-ZN-2002 #2 PLAN CHECK# 6787-06-1 Q.S.# 39-45

Registered Professional Engineer (Civil)
CERTIFICATE NO.
44687
USA L.
CRANE
Date Signed 8/6/07
ARIZONA, U.S.A.

DRAWN	YLJ
CHECKED	SAA
DATE	09 AUGUST 2007
SCALE	1"=40'
JOB NO.	021584.14
SHEET	2 OF 11

CALL TWO WORKING DAYS BEFORE YOU DIG
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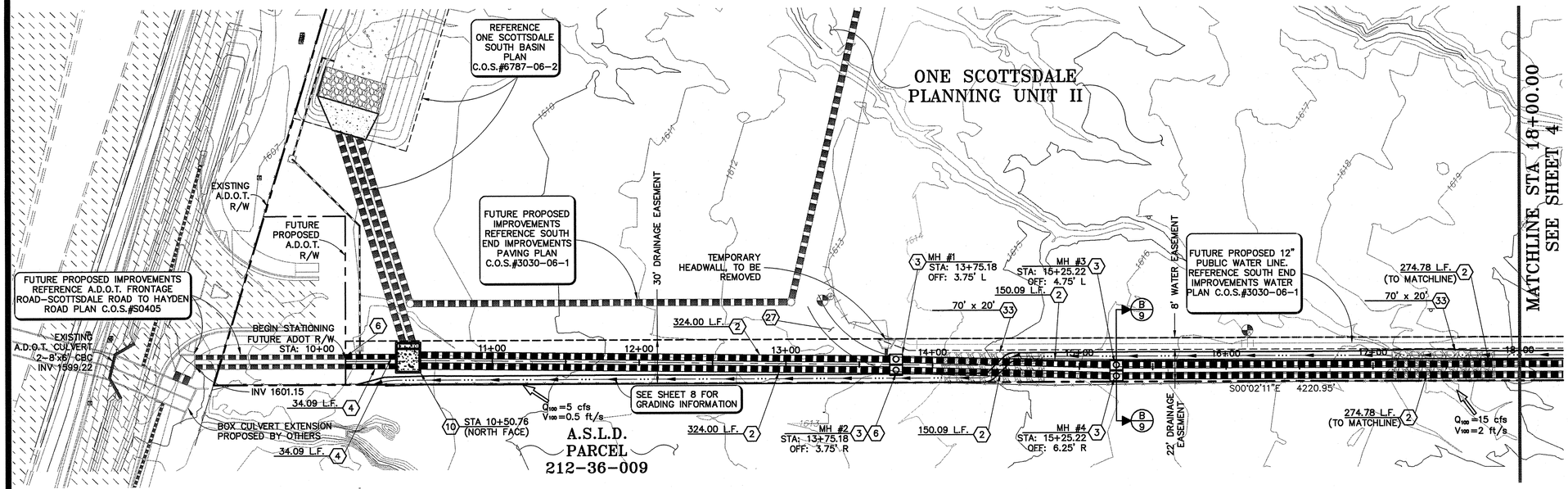

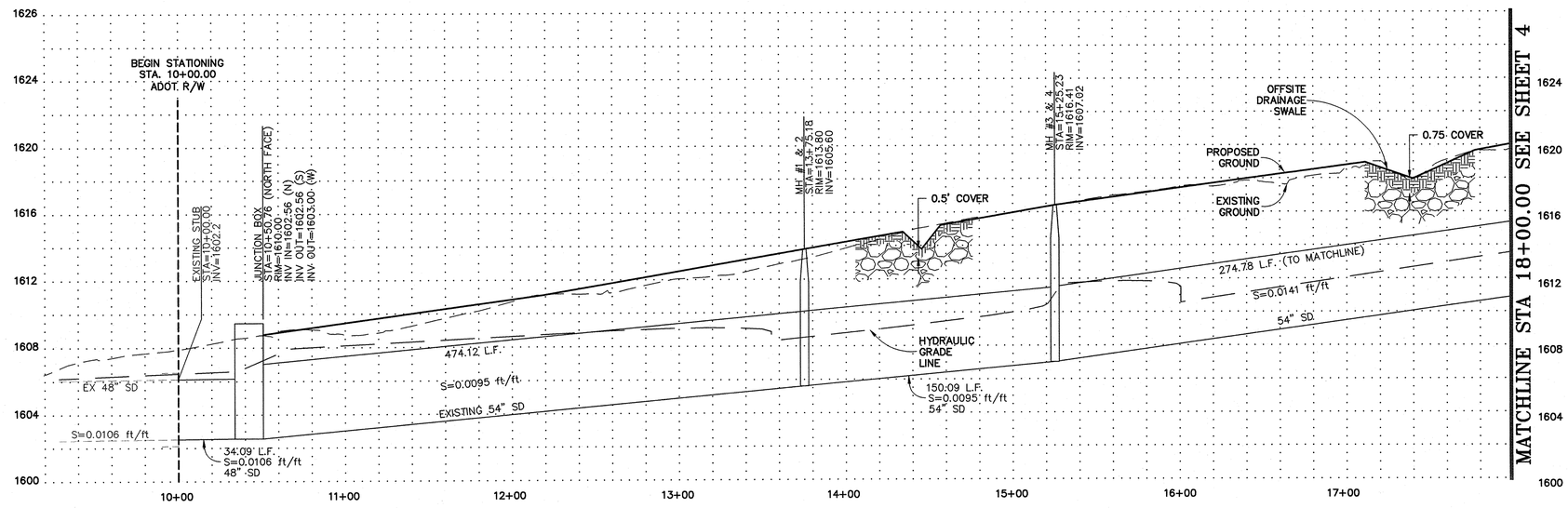

CONSTRUCTION NOTES

(2) INSTALL 54" RGRCP CLASS III. TRENCH BEDDING AND BACKFILL PER C.O.S. STD. DET. 2201.

(3) CONSTRUCT STORM DRAIN MANHOLE WITH WATER TIGHT LID PER MAG STD. DTL. 521 & 522. ADJUST MANHOLE RIM TO FINAL GRADE PER C.O.S. STD. DET. 2270. FILL 0.58' VOID BETWEEN MANHOLES WITH 1/2 SACK ABC SLURRY BACKFILL OR APPROVED EQUIVALENT. SEE LANDSCAPE PLAN FOR STORM DRAIN MANHOLE RIM FINISH.

(4) INSTALL 48" RGRCP CLASS III. TRENCH BEDDING AND BACKFILL PER S.O.S. STD. DET. 2201.

(6) REMOVE PLUG AND CONNECT TO EXISTING 48" R.G.R.C.P. FOR CONTINUATION SEE THE ADOT FRONTAGE ROAD PLAN C.O.S.#S0405. CONTRACTOR TO VERIFY HORIZONTAL AND VERTICAL LOCATION PRIOR TO START OF CONSTRUCTION & REPORT ANY DISCREPANCIES TO OWNER.

(10) CONSTRUCT CONCRETE DIVERSION STRUCTURE PER DETAILS, SHEET 11. COLOR TO BE SAN DIEGO BUFF.

(27) MEANDERING TRAIL SHOWN FOR GENERAL INFORMATION (POTENTIAL FUTURE LOCATION) SEE LANDSCAPE PLAN FOR LOCATION AND DESIGN.

(33) INSTALL TYPE I INDIGENOUS/NATIVE STONE BURIED RIP-RAP (D_{50}=8", 2' THICK, AREA PER PLAN). REFERENCE TABLE ON SHEET 10. SEE BURIED RIP-RAP DETAIL, SHEET 9.

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ONE SCOTTSDALE

EAST REGIONAL DRAINAGE CORRIDOR IMPROVEMENTS

SCOTTSDALE, ARIZONA

DRAWN	YLJ
CHECKED	SAA
DATE	09 AUGUST 2007
SCALE	1"=40'
JOB NO.	021584.14
SHEET	3 OF 11

S.A.# 396-SA-2006 S.A.# 280-SA-2006 54-N.P.-2006 D.R.# 1-DR-2006 ZN# 20-ZN-2002 #2 PLAN CHECK# 6787-06-1 Q.S.# 39-45

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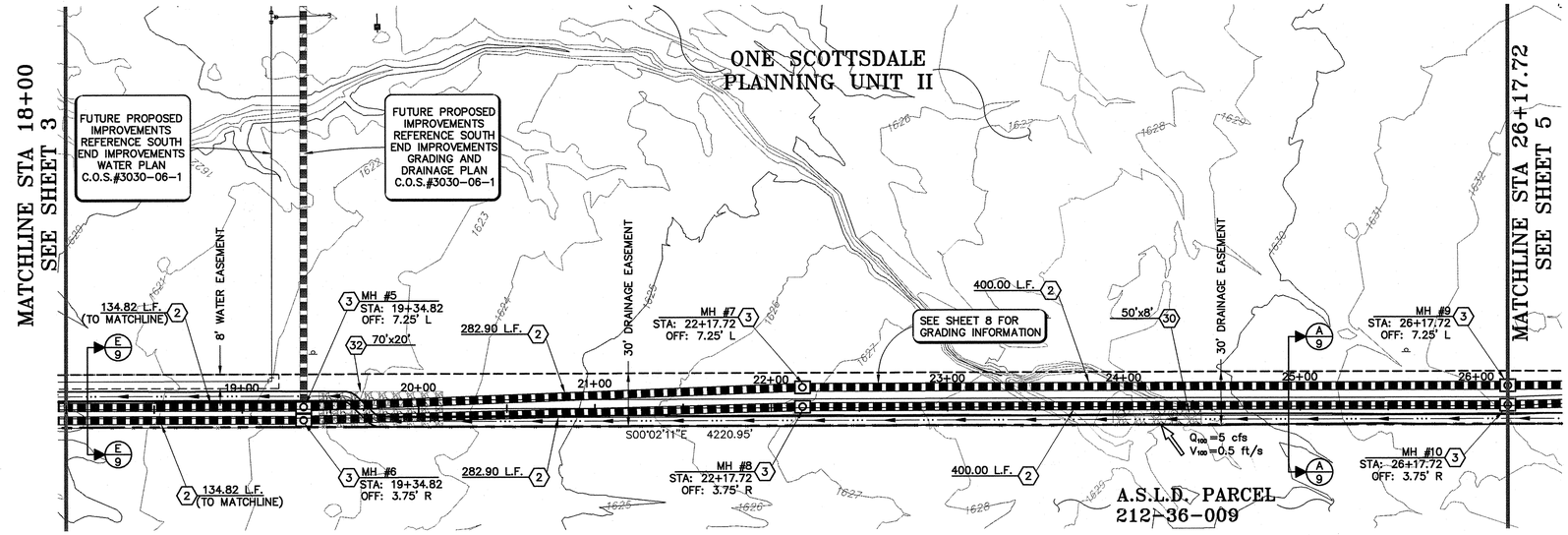

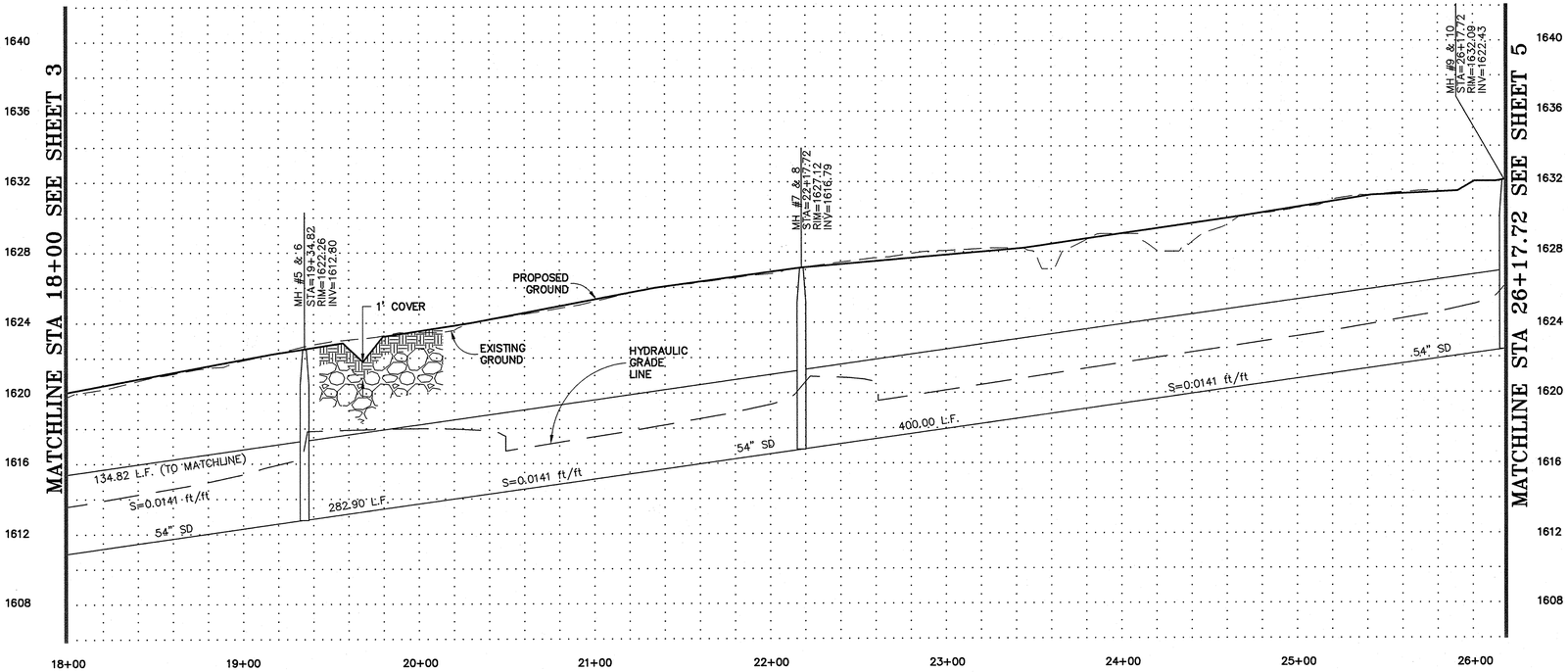

CONSTRUCTION NOTES

(2) INSTALL 54" RGRCP CLASS III. TRENCH BEDDING AND BACKFILL PER C.O.S. STD. DET. 2201.

(3) CONSTRUCT STORM DRAIN MANHOLE WITH WATER TIGHT LID PER MAG STD. DTL. 521 & 522. ADJUST MANHOLE RIM TO FINAL GRADE PER C.O.S. STD. DET. 2270. FILL 0.58' VOID BETWEEN MANHOLES WITH 1/2 SACK ABC SLURRY BACKFILL OR APPROVED EQUIVALENT. SEE LANDSCAPE PLAN FOR STORM DRAIN MANHOLE RIM FINISH.

(30) INSTALL TYPE I INDIGENOUS/NATIVE STONE BURIED RIP-RAP (D_{50}=8", 3' THICK, AREA PER PLAN). REFERENCE TABLE ON SHEET 10. SEE BURIED RIP-RAP DETAIL, SHEET 9.

(32) INSTALL TYPE I INDIGENOUS/NATIVE STONE BURIED RIP-RAP (D_{50}=8", 2.5' THICK, AREA PER PLAN). REFERENCE TABLE ON SHEET 10. SEE BURIED RIP-RAP DETAIL, SHEET 9.

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ONE SCOTTSDALE

EAST REGIONAL DRAINAGE CORRIDOR IMPROVEMENTS

SCOTTSDALE, ARIZONA

DRAWN	YLJ
CHECKED	SAA
DATE	09 AUGUST 2007
SCALE	1"=40'
JOB NO.	021584.14
SHEET	4 OF 11

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S.A.# 396-SA-2006 S.A.# 280-SA-2006 54-N.P.-2006 D.R.# 1-DR-2006 ZN# 20-ZN-2002 #2 PLAN CHECK# 6787-06-1 Q.S.# 39-45

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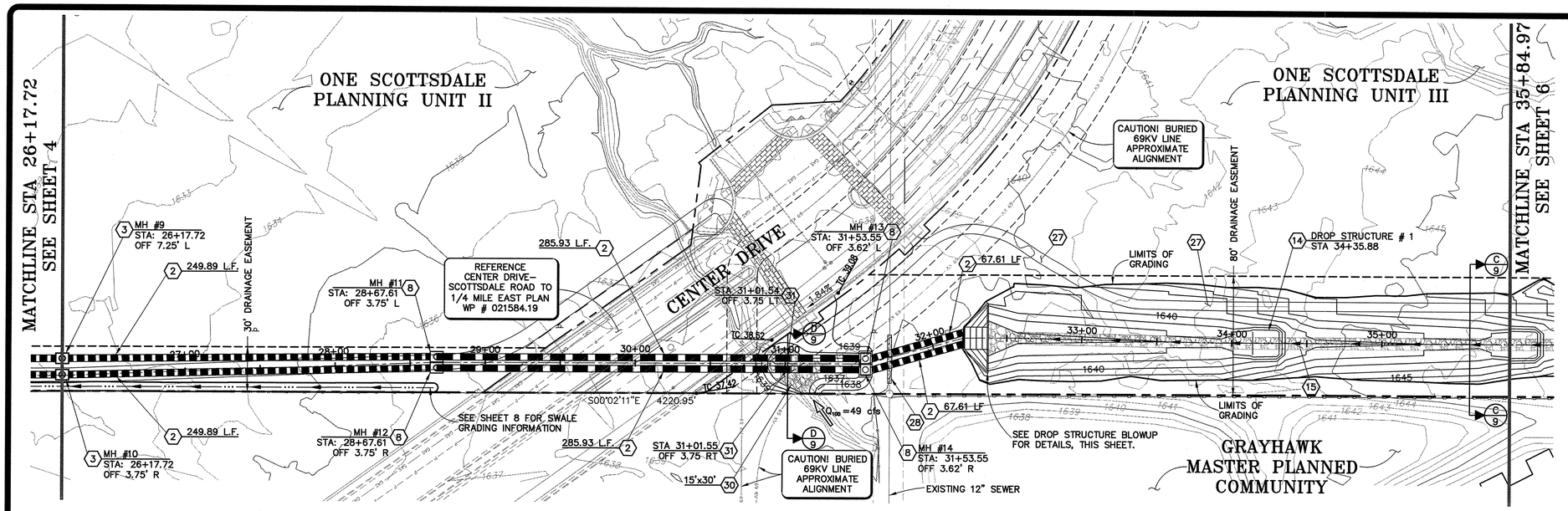

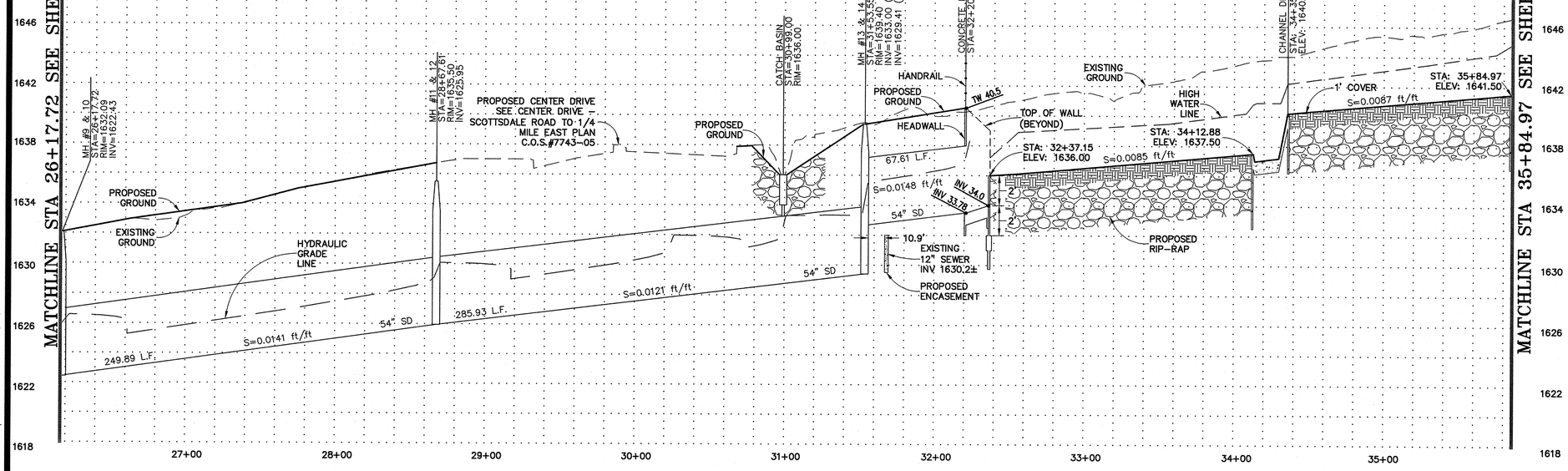

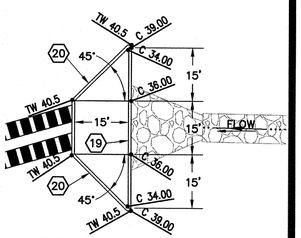

DROP STRUCTURE BLOWUP
SCALE: 1"=20'

CONSTRUCTION NOTES

(2) INSTALL 54" RGRCP CLASS III. TRENCH BEDDING AND BACKFILL PER C.O.S. STD. DET. 2201.

(3) CONSTRUCT STORM DRAIN MANHOLE WITH WATER TIGHT LID PER MAG STD. DTL. 521 & 522. ADJUST MANHOLE RIM TO FINAL GRADE PER C.O.S. STD. DET. 2270. FILL 0.58' VOID BETWEEN MANHOLES WITH 1/2 SACK ABC SLURRY BACKFILL OR APPROVED EQUIVALENT. SEE LANDSCAPE PLAN FOR STORM DRAIN MANHOLE RIM FINISH.

(8) REMOVE EXISTING 18" LEACH LINE & ROCK PIT. CONSTRUCT STORM DRAIN MANHOLE WITH WATER TIGHT LID ON EXISTING 54" PIPES PER MAG. STD. DET. 521 AND 522. FOR CONTINUATION SEE CENTER DRIVE – SCOTTSDALE ROAD TO 1/4 MILE EAST PLAN. CONTRACTOR TO VERIFY HORIZONTAL AND VERTICAL LOCATION PRIOR TO START OF CONSTRUCTION & REPORT ANY DISCREPANCIES TO OWNER.

(14) CONSTRUCT CHANNEL DROP STRUCTURE SEE DETAIL ON SHEET 10. COLOR TO BE SAN DIEGO BUFF.

(15) CONSTRUCT EARTHEN CHANNEL PER SECTION C–C, SEE SHEET 9. RIP–RAP TO BE TYPE I INDIGENOUS/NATIVE STONE (D_{50}=8",3' THICK), SEE TABLE ON SHEET 10.

(19) CONSTRUCT CANTILEVER RETAINING WALL (H=4') PER A.D.O.T. STD. DET. B–18.10 AND B–18.20. PROVIDE 1" DIA. WEEP HOLES, 18" O.C. AT ELEV. 1634.5 INSTALL FILTER FABRIC MIRAF1–140, OR APPROVED EQUAL. INSTALL TRASH RACK PER M.A.G. STD. DET. 502–1. COLOR TO BE SAN DIEGO BUFF.

(20) CONSTRUCT MULTIPLE PIPE INLET HEADWALL PER A.D.O.T. STD. DET. B–11.14, SKEW ANGLE 45° (DIMS PER PLAN). INSTALL HANDRAIL PER C.O.S. STD. DET. 2508. COLOR TO BE SAN DIEGO BUFF.

(27) MEANDERING TRAIL SHOWN FOR GENERAL INFORMATION (POTENTIAL FUTURE LOCATION) SEE LANDSCAPE PLAN FOR LOCATION AND DESIGN.

(28) CONCRETE ENCASE EXISTING 12" SEWER PER M.A.G. STD. DET. 404–2.

(30) INSTALL TYPE I INDIGENOUS/NATIVE STONE BURIED RIP–RAP (D_{50}=8", 3' THICK, AREA PER PLAN). REFERENCE TABLE ON SHEET 10. SEE BURIED RIP–RAP DETAIL, SHEET 9.

(31) INSTALL CATCH BASIN (V=2') PER M.A.G. STD. DET. 535 TYPE "F", MODIFIED. SEE SHEET 10 FOR MODIFICATIONS. CONNECT CATCH BASIN TO STORM DRAIN VIA 18" CMP PER M.A.G. STD. DET. 524.

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S:\2002\021584.14\Dwg\mp\East Corridor\ 021584-14-05SHT.DWG

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ONE SCOTTSDALE

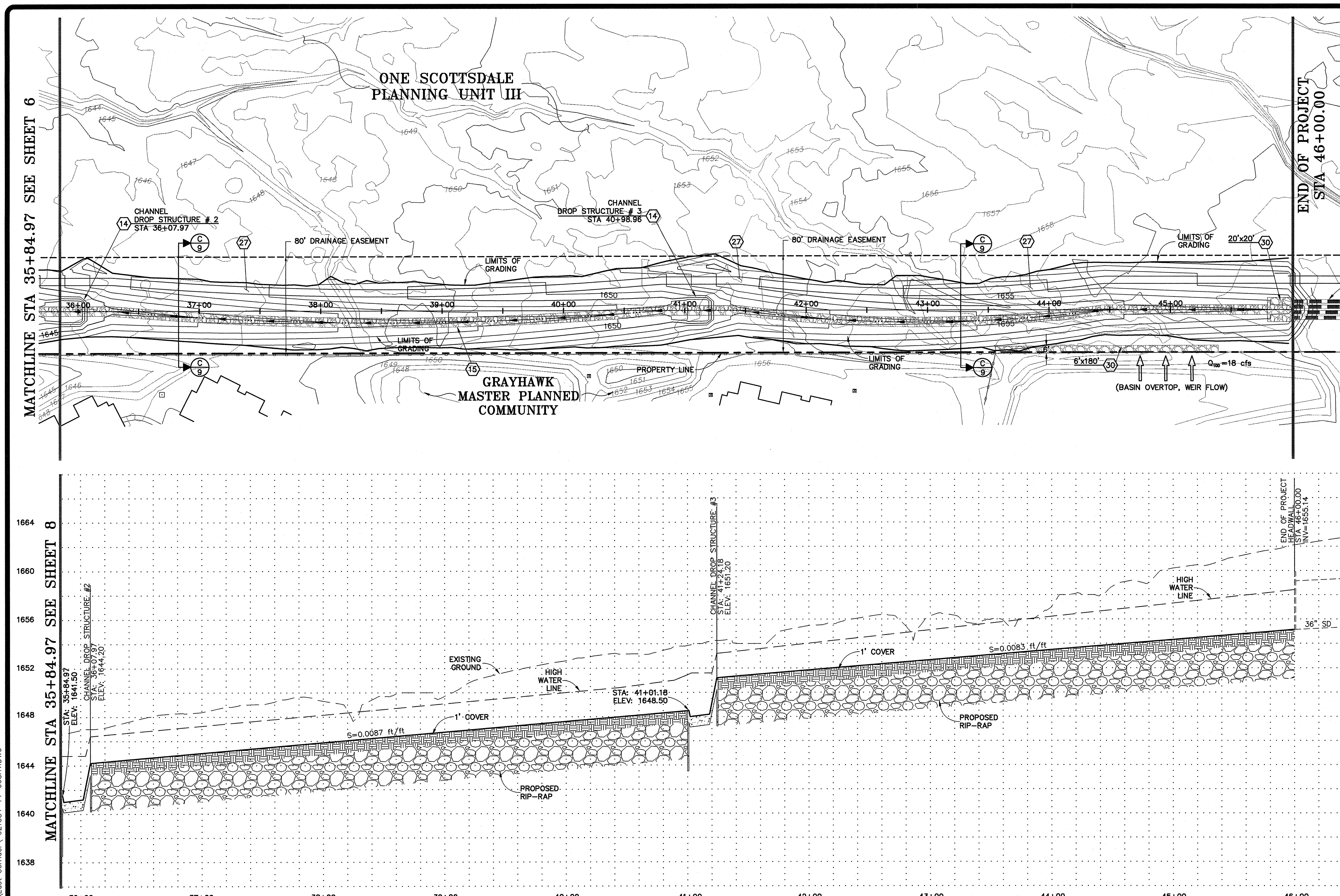
EAST REGIONAL DRAINAGE CORRIDOR IMPROVEMENTS

SCOTTSDALE, ARIZONA

Registered Professional Engineer (Civil)
CERTIFICATE NO. 44687
LISA L. CRANE
State Engineer
ARIZONA, U.S.A.

DRAWN	YLJ
CHECKED	SAA
DATE	09 AUGUST 2007
SCALE	1"=40'
JOB NO.	021584.14
SHEET	5 OF 11

S.A.# 396-SA-2006 S.A.# 280-SA-2006 54-N.P.-2006 D.R.# 1-DR-2006 ZN# 20-ZN-2002 #2 PLAN CHECK# 6787-06-1 Q.S.# 39-45



CONSTRUCTION NOTES

(14) CONSTRUCT CHANNEL DROP STRUCTURE SEE DETAIL ON SHEET 10. COLOR TO BE SAN DIEGO BUFF.

(15) CONSTRUCT EARTHEN CHANNEL PER SECTION C-C, SEE SHEET 9. RIP-RAP TO BE TYPE I INDIGENOUS/NATIVE STONE (D_{50}=8",3' THICK), SEE TABLE ON SHEET 10.

(27) MEANDERING TRAIL SHOWN FOR GENERAL INFORMATION (POTENTIAL FUTURE LOCATION) SEE LANDSCAPE PLAN FOR LOCATION AND DESIGN.

(30) INSTALL TYPE I INDIGENOUS/NATIVE STONE BURIED RIP-RAP (D_{50}=8", 3' THICK, AREA PER PLAN). REFERENCE TABLE ON SHEET 10. SEE BURIED RIP-RAP DETAIL, SHEET 9.

CALL TWO WORKING DAYS BEFORE YOU DIG
263-1100
1-800-STAKE-IT
(OUTSIDE MARICOPA COUNTY)

ONE SCOTTSDALE

EAST REGIONAL DRAINAGE CORRIDOR IMPROVEMENTS

SCOTTSDALE, ARIZONA

DMB

WOOD/PATEL
Civil Engineers
Hydrologists
Land Surveyors
Construction Managers
(602) 335-8500

Registered Professional Engineer (Civil) CERTIFICATE NO. 44687 LISA L. CRANE ARIZONA, U.S.A.

DRAWN	YLJ
CHECKED	SAA
DATE	09 AUGUST 2007
SCALE	1"=40'
JOB NO.	021584.14
SHEET	6 OF 11

S.A.# 396-SA-2006 S.A.# 280-SA-2006 54-N.P.-2006 D.R.# 1-DR-2006 ZN# 20-ZN-2002 #2 PLAN CHECK# 6787-06-1 Q.S.# 39-45

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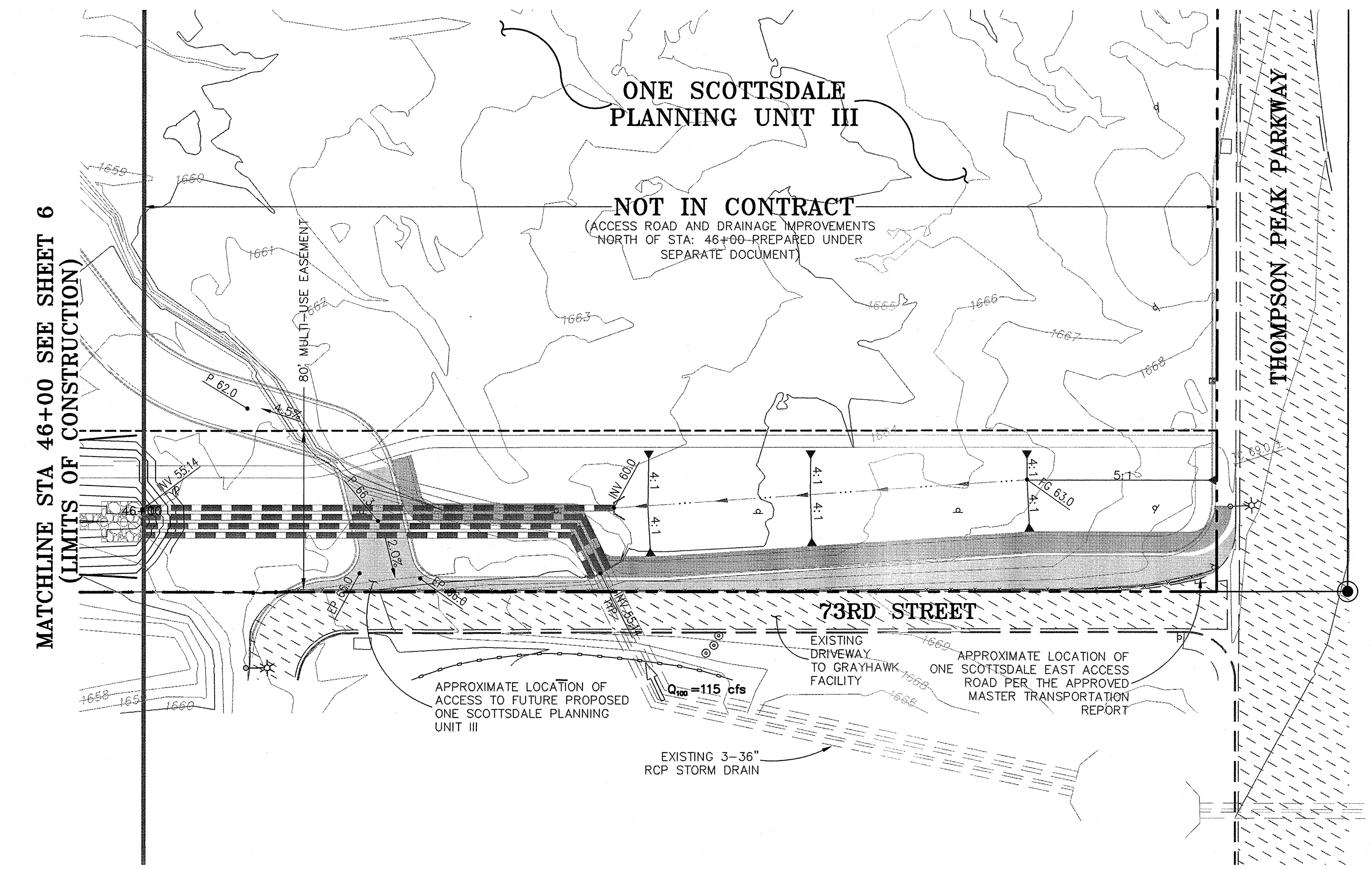

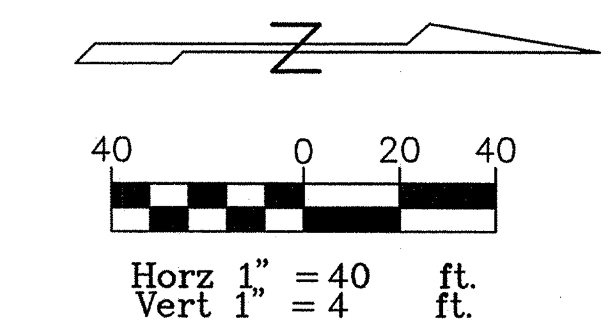

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ONE SCOTTSDALE

EAST REGIONAL DRAINAGE CORRIDOR IMPROVEMENTS
SCOTTSDALE, ARIZONA

Registered Professional Engineer
CERTIFICATE NO. 44687
LISA L. CRANE
ARIZONA, U.S.A.

DRAWN	YLJ
CHECKED	SAA
DATE	09 AUGUST 2007
SCALE	1"=40'
JOB NO.	021584.14
SHEET	7 OF 11

CALL TWO WORKING DAYS BEFORE YOU DIG
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(OUTSIDE MARICOPA COUNTY)

S.A.# 396-SA-2006 S.A.# 280-SA-2006 54-N.P.-2006 D.R.# 1-DR-2006 ZN# 20-ZN-2002 #2 PLAN CHECK# 6787-06-1 Q.S.# 39-45

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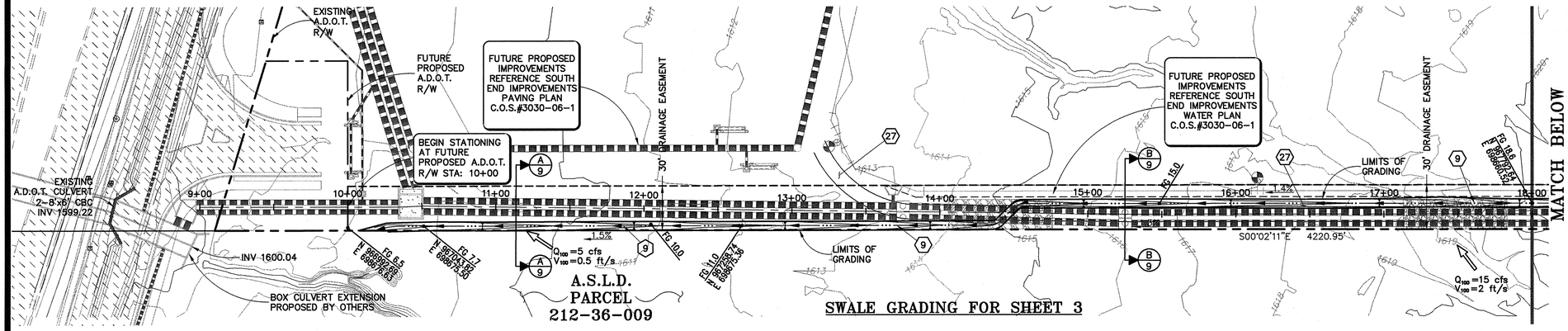
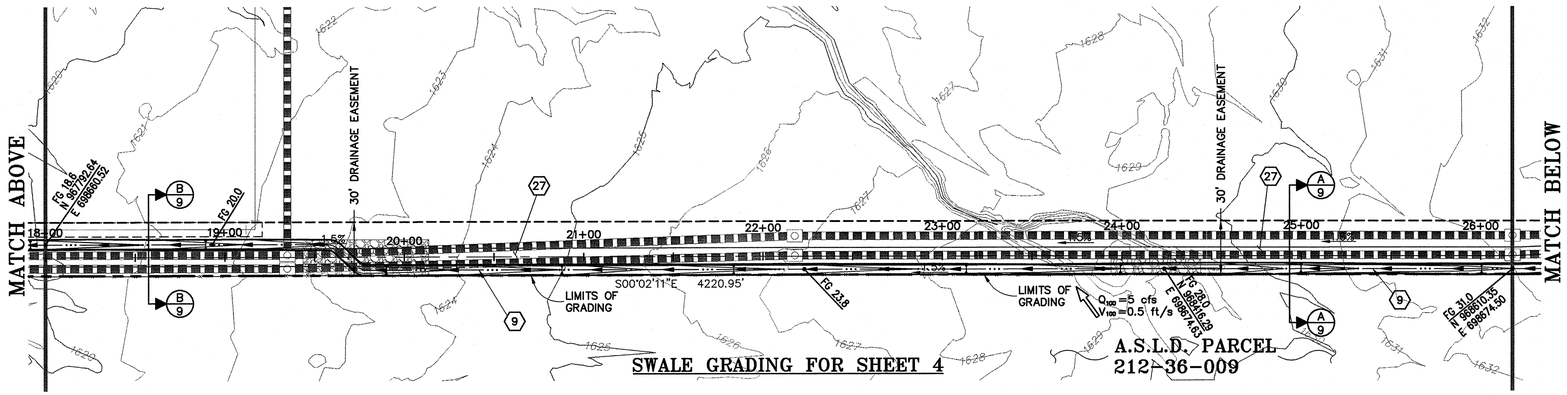
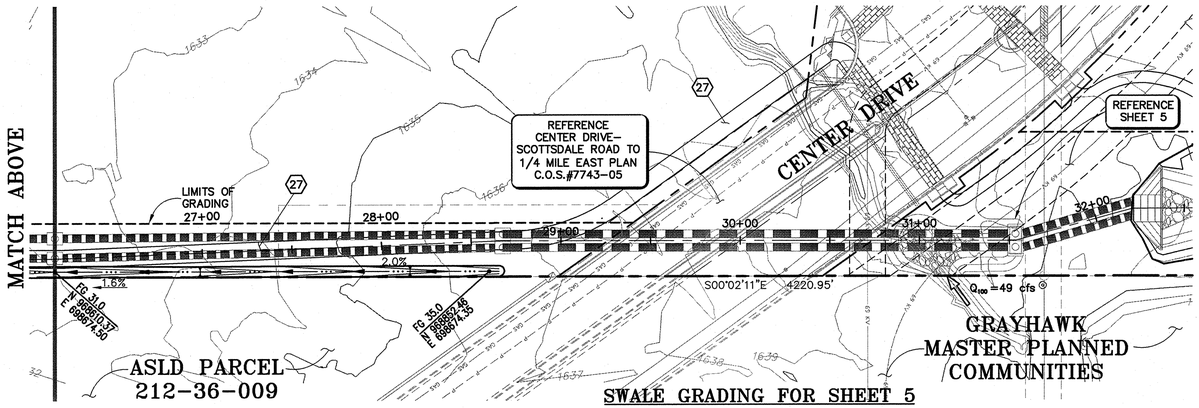
DRAINAGE SWALE PLAN



SWALE GRADING FOR SHEET 3



SWALE GRADING FOR SHEET 4



SWALE GRADING FOR SHEET 5

CONSTRUCTION NOTES

(9) CONSTRUCT SWALE PER TYPICAL SECTION A-A OR B-B AS SHOWN.

(27) MEANDERING TRAIL SHOWN FOR GENERAL INFORMATION (POTENTIAL FUTURE LOCATION) SEE LANDSCAPE PLAN FOR LOCATION AND DESIGN.

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ONE SCOTTSDALE

EAST REGIONAL DRAINAGE CORRIDOR IMPROVEMENTS

SCOTTSDALE, ARIZONA

Professional Engineer (Civil)
CERTIFICATE NO. 44687
LISA L. CRANE
Date Signed 8/31/07
ARIZONA, U.S.A.

DRAWN	YLJ
CHECKED	SAA
DATE	09 AUGUST 2007
SCALE	1"=40'
JOB NO.	021584.14
SHEET	8 OF 11

S.A.# 396-SA-2006 S.A.# 280-SA-2006 54-N.P.-2006 D.R.# 1-DR-2006 ZN# 20-ZN-2002 #2 PLAN CHECK# 6787-06-1 Q.S.# 39-45

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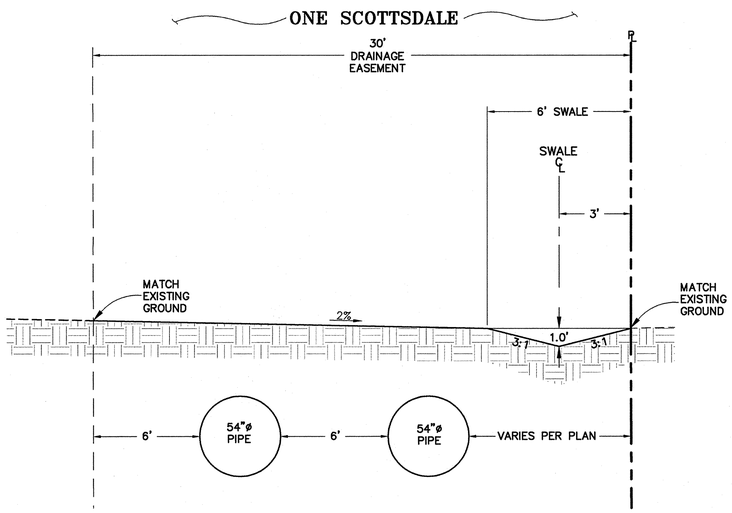
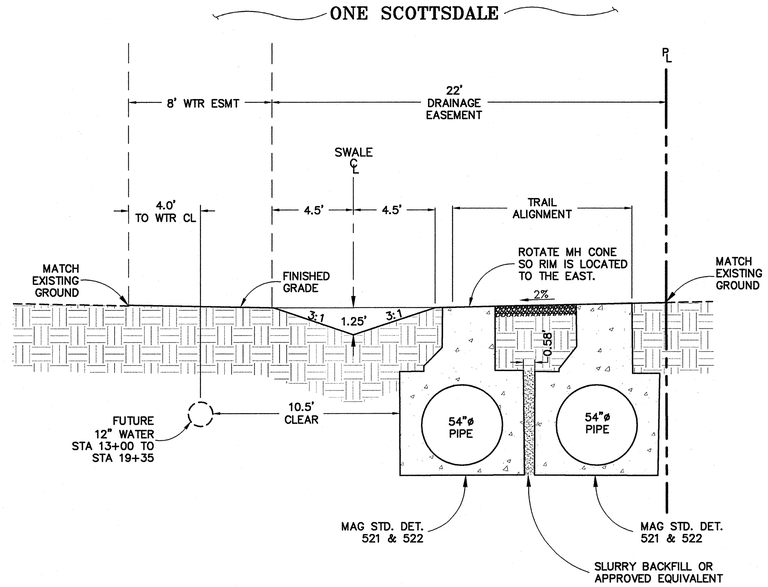
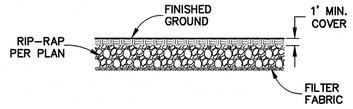


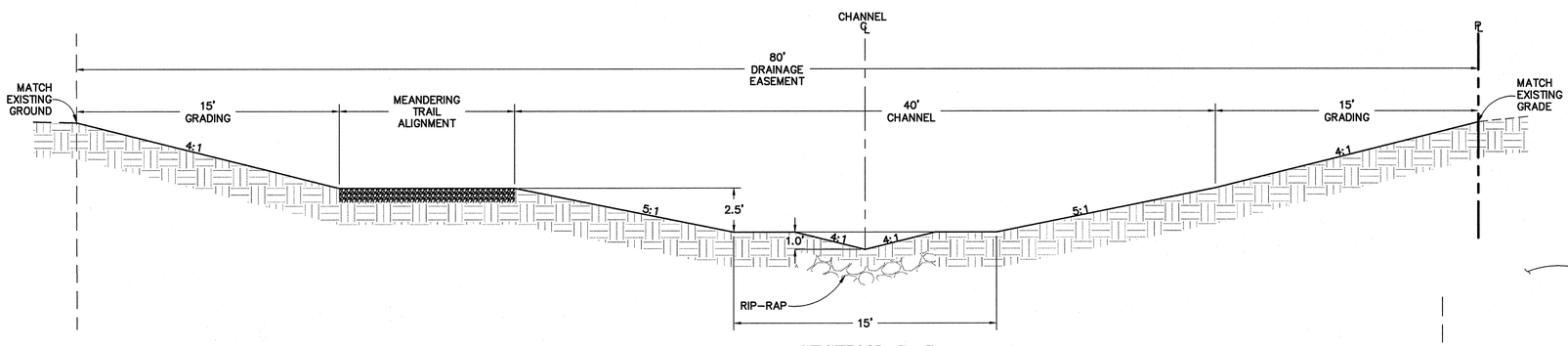
SECTION A–A
SCALE: 1"=4'
STA 10+00 TO 13+00



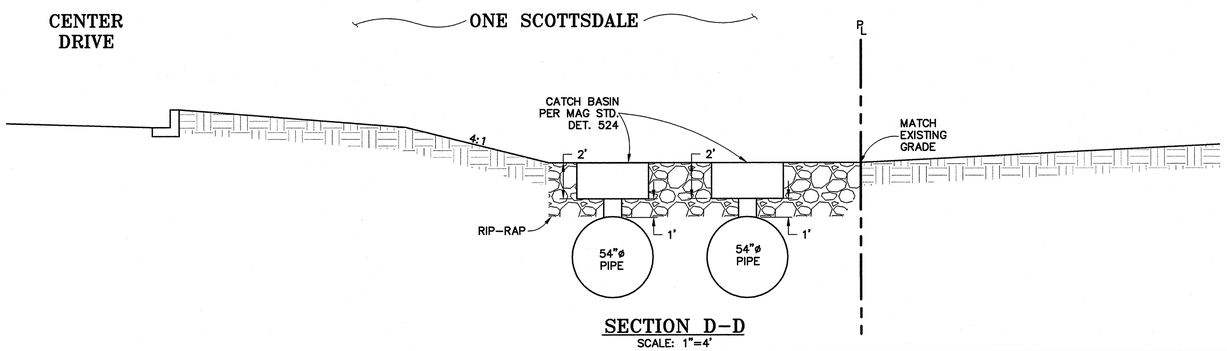
SECTION B–B
SCALE: 1"=4'
STA 13+00 TO 28+60



BURIED RIP–RAP DETAIL



SECTION C–C
SCALE: 1"=4'
STA 32+12 TO 46+00



SECTION D–D
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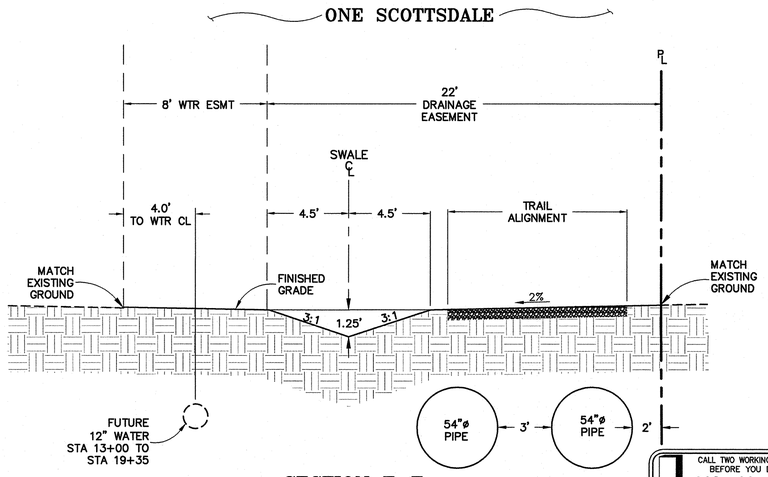

SECTION E–E
SCALE: 1"=4'

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Hydrologists
Land Surveyors
Construction Managers
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ONE SCOTTSDALE

EAST REGIONAL DRAINAGE CORRIDOR IMPROVEMENTS

SCOTTSDALE, ARIZONA

Registered Professional Engineer (Civil)
CERTIFICATE NO.
44687
LISA L.
CRANE
Date Signed 8/9/07
Arizona, U.S.A.

DRAWN	YLJ
CHECKED	SAA
DATE	09 AUGUST 2007
SCALE	1"=40'
JOB NO.	021584.14
SHEET	9 OF 11

CALL TWO WORKING DAYS BEFORE YOU DIG
263-1100
1-800-STAKE-IT
(OUTSIDE MARICOPA COUNTY)

S.A.# 396-SA-2006 S.A.# 280-SA-2006 54-N.P.-2006 D.R.# 1-DR-2006 ZN# 20-ZN-2002 #2 PLAN CHECK# 6787-06-1 Q.S.# 39-45

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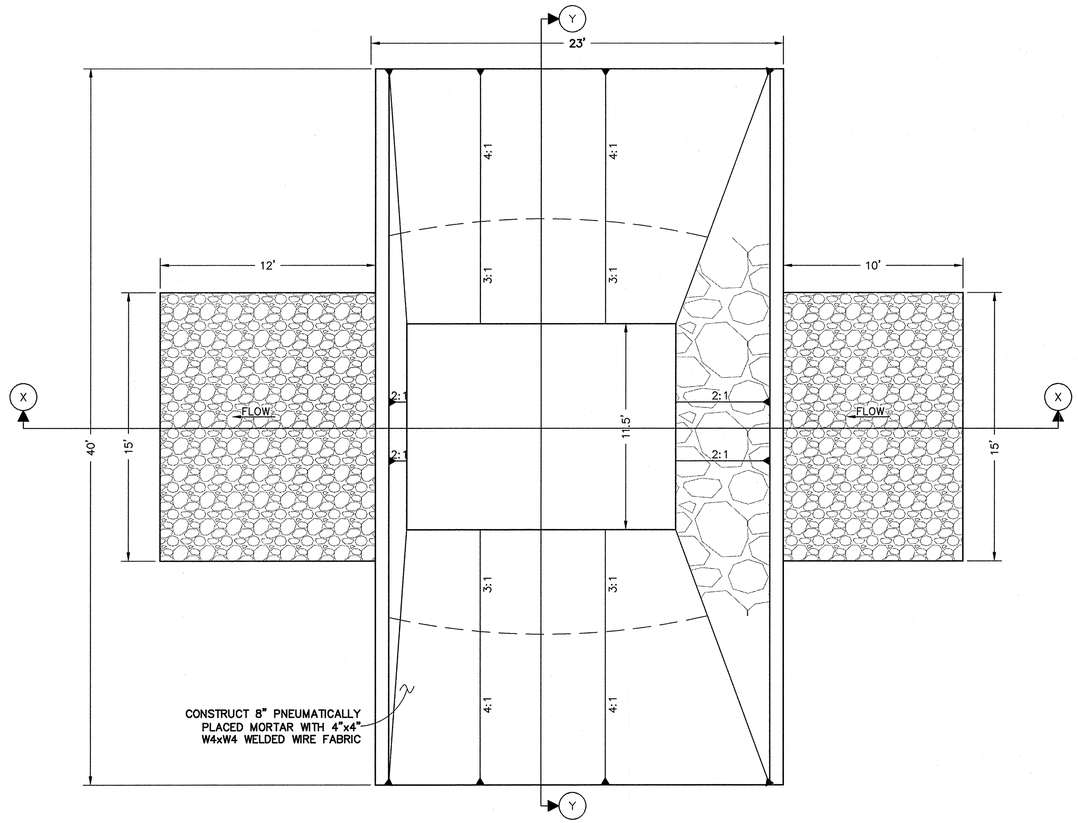
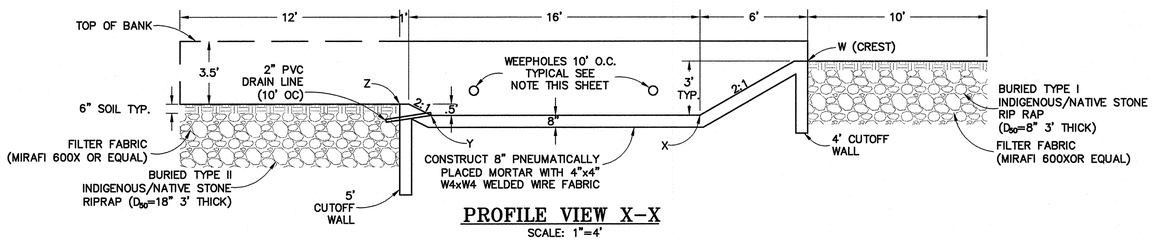


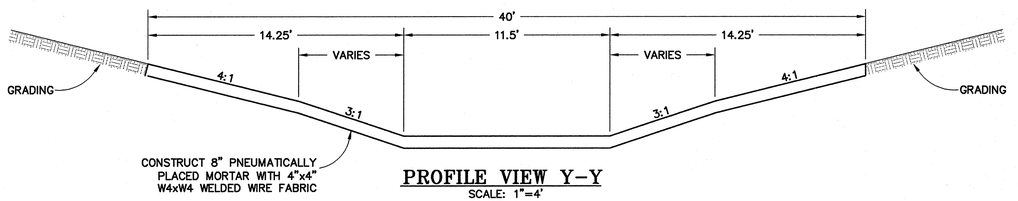
PLAN VIEW

SCALE: 1"=4'



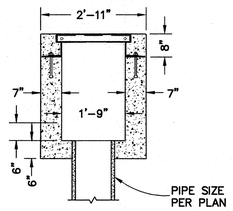
PROFILE VIEW X–X

SCALE: 1"=4'



PROFILE VIEW Y–Y

SCALE: 1"=4'



M.A.G. 535 CATCH BASIN TYPE 'F' BOX MODIFICATION

MODIFICATIONS TO M.A.G. STD. DET. 534–1, SECTION B–B

INDIGENOUS/NATIVE STONE RIPRAP GRADATION TABLE

PERCENT FINER BY WEIGHT	SIEVE SIZE	
	TYPE I	TYPE II
15	8"	12"
50	12"	18"
85	18"	27"
100	24"	36"

INSTALL LOOSE RIPRAP PER M.A.G. SPEC. 200.

DROP STRUCTURE	CREST STATION	ELEVATIONS			
		W	X	Y	Z
#1	34+10.66	40.2	37.2	37.0	37.5
#2	35+82.75	44.2	41.2	41.0	41.5
#3	40+98.96	51.2	48.2	48.0	48.5

CHANNEL DROP STRUCTURE DETAIL

NOTE:
WEEPHOLES SHALL INCLUDE 3" DRAIN PIPES 10' O.C. WITH A SLOPE OF $\frac{1}{4}$" PER FOOT, INSTALLED ONE FOOT ABOVE THE BASIN BOTTOM. USE 1 CU. FT. OF COARSE AGGREGATE (AASHTO M43 SIZE NO.7) SECURELY TIED IN BURLAP SACK AT EACH DRAIN LOCATION.

CALL TWO WORKING DAYS BEFORE YOU DIG
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Construction Managers
(602) 335-8500

ONE SCOTTSDALE

EAST REGIONAL DRAINAGE CORRIDOR IMPROVEMENTS

SCOTTSDALE, ARIZONA

Registered Professional Engineer (Civil)
CERTIFICATE NO.
44687
LISA L.
CRANE
Date Signed
ARIZONA, U.S.A.

DRAWN	YLJ
CHECKED	SAA
DATE	09 AUGUST 2007
SCALE	
JOB NO.	021584.14
SHEET	10 OF 11

S.A.# 396-SA-2006 S.A.# 280-SA-2006 54-N.P.-2006 D.R.# 1-DR-2006 ZN# 20-ZN-2002 #2 PLAN CHECK# 6787-06-1 Q.S.# 39-45

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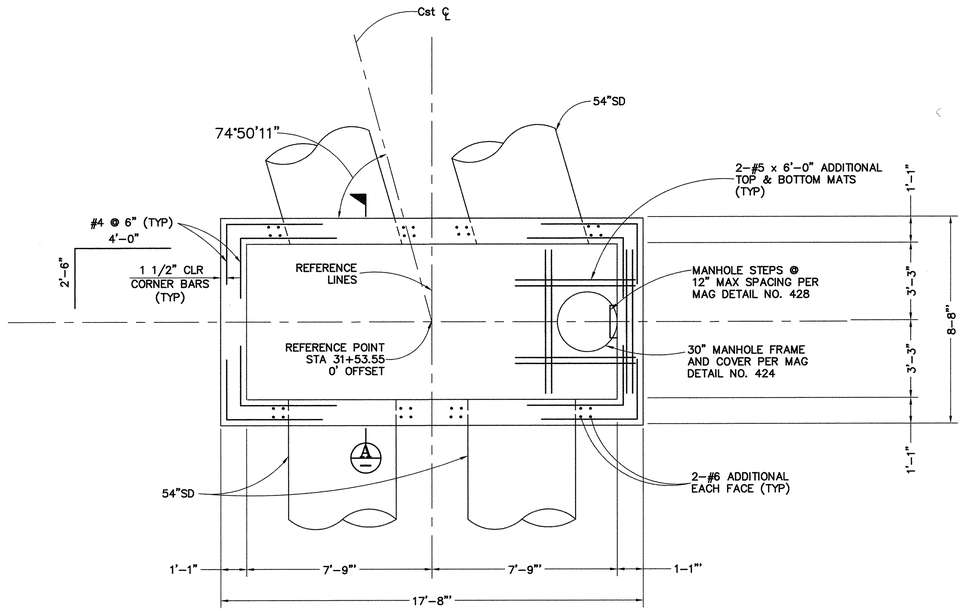
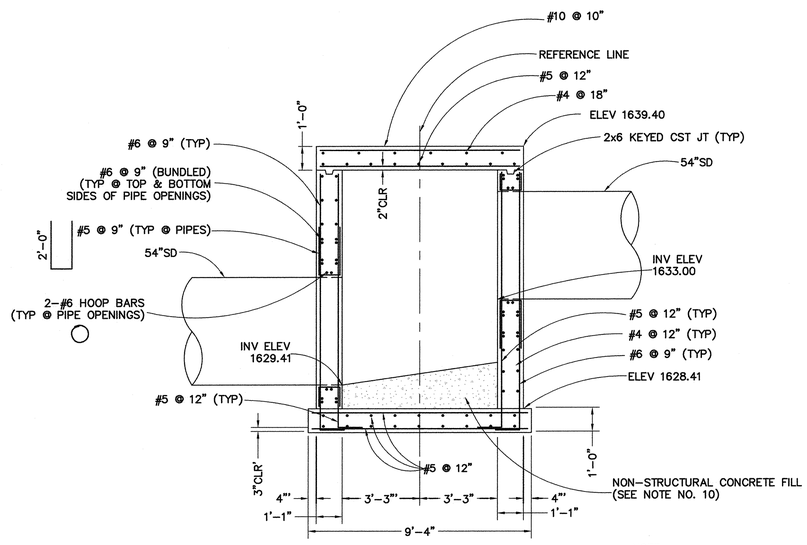


PLAN VIEW



SECTION A

NOTE:

CONRNER BARS (#4 @ 6") NOT SHOWN FOR CLARITY.

GENERAL NOTES

1. CONSTRUCTION SPECIFICATIONS – M.A.G. UNIFORM STANDARD SPECIFICATIONS AND DETAILS FOR PUBLIC WORKS.
2. ALL CONCRETE SHALL BE MAG CLASS AA UNLESS OTHERWISE NOTED.
3. REINFORCING STEEL SHALL CONFORM TO ASTM SPECIFICATION A615. ALL REINFORCING SHALL BE FURNISHED AS GRADE 60.
4. ALL BENDS AND HOOKS SHALL MEET THE REQUIREMENTS OF AASHTO ARTICLE 8.23. ALL BEND DIMENSIONS FOR REINFORCING STEEL SHALL BE OUT-TO-OUT OF BARS. ALL PLACEMENT DIMENSIONS FOR REINFORCING STEEL SHALL BE TO CENTER OF BARS UNLESS NOTED OTHERWISE.
5. ALL REINFORCING STEEL SHALL HAVE 2 INCH CLEAR COVER UNLESS NOTED OTHERWISE.
6. STRESSES:
   MAG AA CONCRETE.....f'c = 4000 PSI.
   GRADE 60 REINFORCEMENT.....Fy = 60,000 PSI.
7. CHAMFER ALL EXPOSED CORNERS 3/4" UNLESS NOTED OTHERWISE.
8. DIMENSIONS SHALL NOT BE SCALED FROM DRAWINGS.
9. PIPES SHALL BE TRIMMED TO FINAL SHAPE AND LENGTH BEFORE CONCRETE IS PLACED.
10. SUMP FLOOR SHALL HAVE A WOOD TROWEL FINISH AND A MINIMUM SLOPE OF 4:1 IN ALL DIRECTIONS TOWARD OUTLET PIPE.
11. CONSTRUCTION JOINTS SHALL BE PLACED TO MEET FIELD CONDITIONS.
12. TRIM REINFORCING STEEL AROUND PIPES TO PROVIDE A 2" CLEAR.

DMB

ONE SCOTTSDALE

EAST REGIONAL DRAINAGE CORRIDOR IMPROVEMENTS

SCOTTSDALE, ARIZONA

S.A.# 396-SA-2006 S.A.# 280-SA-2006 54-N.P.-2006 D.R.# 1-DR-2006 ZN# 20-ZN-2002 #2 PLAN CHECK# 6787-06-1 Q.S.# 39-45

Registered Professional Engineer
39510
DIEGO ERNESTO OLDEN
Date Signed 08/15/07
ARIZONA, U.S.A.

DRAWN	DBB
CHECKED	SEO
DATE	14 AUGUST 2007
SCALE	N/A
JOB NO.	021584.14
SHEET	11 OF 11

CALL TWO WORKING DAYS BEFORE YOU DIG
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(OUTSIDE MARICOPA COUNTY)

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ONE SCOTTSDALE PU III
EAST DRAINAGE STORM DRAIN IMPROVEMENTS
SCOTTSDALE, ARIZONA

ENGINEERS NOTES

1. MARICOPA ASSOCIATION OF GOVERNMENTS (M.A.G.) UNIFORM STANDARD SPECIFICATIONS AND DETAILS FOR PUBLIC WORKS CONSTRUCTION (LATEST EDITION INCLUDING LATEST REVISION AND CURRENT SUPPLEMENTALS THEREOF PER THE LOCAL TOWN OR CITY) ARE INCORPORATED INTO THIS PLAN IN THEIR ENTIRETY.
2. ALL WORK REQUIRED TO COMPLETE THE CONSTRUCTION COVERED BY THIS PLAN SHALL BE IN ACCORDANCE WITH THE M.A.G. STANDARD SPECIFICATIONS AND DETAILS AND CURRENT SUPPLEMENTS THEREOF PER THE LOCAL CITY OR TOWN UNLESS SPECIFIED OTHERWISE IN THESE PLANS OR ELSEWHERE IN THE CONTRACT DOCUMENTS. CONTRACTORS SHALL FAMILIARIZE THEMSELVES WITH ALL REQUIRED STANDARD SPECIFICATIONS, DETAILS AND SUPPLEMENTS PRIOR TO BIDDING THE WORK FOR THE CONSTRUCTION COVERED BY THIS PLAN.
3. THE CONTRACTOR IS RESPONSIBLE FOR ALL METHODS, SEQUENCING, AND SAFETY CONCERNS ASSOCIATED WITH THIS PROJECT DURING CONSTRUCTION, UNLESS SPECIFICALLY ADDRESSED OTHERWISE IN THIS PLAN OR ELSEWHERE IN THE CONTRACT.
4. THE CONTRACTOR IS TO COMPLY WITH ALL LOCAL, STATE, AND FEDERAL LAWS AND REGULATIONS APPLICABLE TO THE CONSTRUCTION COVERED BY THIS PLAN.
5. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND COMPLYING WITH ALL PERMITS REQUIRED TO COMPLETE ALL WORK COVERED BY THIS PLAN.
6. THE QUANTITIES AND SITE CONDITIONS DEPICTED IN THESE PLANS ARE FOR INFORMATIONAL PURPOSES ONLY AND ARE SUBJECT TO ERROR AND OMISSION. CONTRACTORS SHALL SATISFY THEMSELVES AS TO ACTUAL QUANTITIES AND SITE CONDITIONS PRIOR TO BIDDING THE WORK FOR THE CONSTRUCTION COVERED BY THIS PLAN.
7. A REASONABLE EFFORT HAS BEEN MADE TO SHOW THE LOCATIONS OF EXISTING UNDERGROUND FACILITIES AND UTILITIES IN THE CONSTRUCTION AREA. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO UTILITIES AND/OR FACILITIES CAUSED DURING THEIR CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL CALL 48 HOURS IN ADVANCE FOR BLUE STAKE (1-800-STAKE-IT) PRIOR TO ANY EXCAVATION.
8. THE CONTRACTOR IS RESPONSIBLE FOR ALL COORDINATION OF CONSTRUCTION AFFECTING UTILITIES AND THE COORDINATION OF ANY NECESSARY UTILITY RELOCATION WORK.
9. ALL PAVING, GRADING, EXCAVATION, TRENCHING, PIPE BEDDING, CUT FILL AND BACKFILL SHALL COMPLY WITH THE RECOMMENDATIONS SET FORTH IN THE SOILS (GEOTECHNICAL) REPORT FOR THIS PROJECT IN ADDITION TO THE REFERENCED REQUIRED SPECIFICATIONS AND DETAILS. THE CONTRACTOR SHALL BE AWARE THAT CERTAIN UTILITIES REQUIRE PROPER ATTENTION AND CAREFUL PLANNING DURING SITE CONSTRUCTION. PLEASE NOTE THAT UTILITIES ON THESE PLANS MAY NOT EXHIBIT THE FULL PROTECTIVE COVER REQUIRED DURING THE SUBGRADE PREPARATION PHASE OF THE CONSTRUCTION. IN SUCH INSTANCES, THE CONTRACTOR SHALL PROVIDE ADDITIONAL PROTECTION (SUCH AS RAMPING) OR INCREASED PIPE STRENGTH TO PROVIDE THE NECESSARY PROTECTION REQUIRED TO PREVENT DAMAGE DURING THE CONSTRUCTION OF THIS PROJECT. THE CONTRACTOR SHALL HOLD THE ENGINEER HARMLESS IN ALL CASES FOR DAMAGES TO UTILITIES WHERE INADEQUATE PROTECTIVE MEASURES OCCUR.
10. THE CONTRACTOR IS TO VERIFY THE LOCATION AND THE ELEVATIONS OF ALL EXISTING UTILITIES AT POINTS OF TIE-IN PRIOR TO COMMENCING ANY NEW CONSTRUCTION. SHOULD ANY LOCATION OR ELEVATION DIFFER FROM THAT SHOWN ON THESE PLANS, THE CONTRACTOR SHALL CONTACT THE OWNER'S AGENT.
11. CONTRACTOR TO VERIFY AND COORDINATE ALL DIMENSIONS AND SITE LAYOUT WITH ARCHITECT'S FINAL SITE PLAN AND FINAL BUILDING DIMENSIONS BEFORE STARTING WORK. REPORT DISCREPANCIES TO OWNER'S AGENT.
12. COORDINATION BETWEEN ALL PARTIES IS ESSENTIAL PART OF CONTRACT.
13. CONTRACTOR IS RESPONSIBLE FOR PROJECT AND SITE CONDITIONS, AND TO WORK WITH WEATHER CONDITIONS AS THE PROJECT SITE MAY BE LOCATED IN A FLOOD PRONE AREA AND SUBJECT TO FLOODING AND ITS HAZARDS.
14. THE CONTRACTOR IS TO VERIFY THE LOCATION, ELEVATION, CONDITION, AND PAVEMENT CROSS-SLOPE OF ALL EXISTING SURFACES AT POINTS OF TIE-IN AND MATCHING, PRIOR TO COMMENCEMENT OF GRADING, PAVING, CURB AND GUTTER, OR OTHER SURFACE CONSTRUCTION. SHOULD EXISTING LOCATIONS, ELEVATIONS, CONDITION, OR PAVEMENT CROSS-SLOPE DIFFER FROM THAT SHOWN ON THESE PLANS, RESULTING IN THE DESIGN INTENT REFLECTED ON THESE PLANS NOT ABLE TO BE CONSTRUCTED, THE CONTRACTOR SHALL NOTIFY THE OWNER'S AGENT IMMEDIATELY FOR DIRECTION ON HOW TO PROCEED PRIOR TO COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR ACCEPTS RESPONSIBILITY FOR ALL COSTS ASSOCIATED WITH CORRECTIVE ACTION IF THESE PROCEDURES ARE NOT FOLLOWED.
15. CONTRACTOR IS RESPONSIBLE TO COORDINATE UTILITY CROSSINGS AT CULVERT CROSSINGS BEFORE STARTING WORK ON CULVERT. COORDINATE WITH OWNER REPRESENTATIVE. VERIFY UTILITY LINES AND/OR CONDUITS ARE IN PLACE BEFORE STARTING CULVERT WORK.
16. CONSTRUCT RETENTION BASIN AS SHOWN. CONTRACTOR TO SCARIFY BOTTOM OF BASIN TWO FEET DEEP AND NOT ALLOW COMPACTION OVER 80%.
17. THIS PROJECT REQUIRES A REGULAR ONGOING MAINTENANCE PROGRAM FOR THE DESIGNED DRAINAGE SYSTEM(S) TO PRESERVE THE DESIGN INTEGRITY AND THE ABILITY TO PERFORM ITS OPERATIONAL INTENT. FAILURE TO PROVIDE MAINTENANCE WILL JEOPARDIZE THE DRAINAGE SYSTEM(S)' PERFORMANCE AND MAY LEAD TO IT'S INABILITY TO PERFORM PROPERLY AND/OR CAUSE DAMAGE ELSEWHERE IN THE PROJECT.
18. SEWER LINES DESIGNED IN PROFILE AND PUBLIC WATER LINES ARE REQUIRED TO BE ASBUILT AND THE INSTALLATION AND TESTING WITNESSED BY A PROFESSIONAL ENGINEER IN ACCORDANCE WITH ARIZONA ADMINISTRATIVE CODES R18-9-E301 "4.01 GENERAL PERMIT: SEWAGE COLLECTIONS SYSTEMS" AND R18-4-507 AND 508 "APPROVAL OF CONSTRUCTION" AND "RECORD DRAWINGS", RESPECTIVELY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY OWNER 72 HOURS IN ADVANCE WHEN THOSE SYSTEMS ARE READY TO BE WITNESSED.
19. THE WORK PRODUCT PRESENTED IS BELIEVED TO BE COMPLIANT WITH THE INTENT OF THE CURRENT AMERICANS DISABILITIES ACT (ADA) REQUIREMENTS AS INTERPRETED BY THE REVIEWING AGENCY(S). IF CONSTRUCTION OF THE PROJECT IS DELAYED, THIS WORK PRODUCT SHOULD BE UPDATED TO ACCOUNT FOR ANY RELEVANT ADA UPDATES BEFORE CONSTRUCTION BEGINS.
20. THIS PLAN SHOULD BE REVIEWED WITH THE AGENCY APPROVED MASTER DRAINAGE PLAN DATED 09-13-09 PREPARED BY WOOD, PATEL & ASSOCIATES.

UTILITY NOTES

1. THESE PLANS HAVE BEEN SUBMITTED TO THE FOLLOWING UTILITY COMPANIES AND THE WORK CONTAINED IN THESE PLANS HAS BEEN APPROVED BY THESE COMPANIES WITHIN THEIR AREA OF INTEREST. THE SIZE AND LOCATIONS, AS SHOWN, OF THE GAS, TELEPHONE AND POWER LINES, AND CONNECTIONS AGREE WITH THE INFORMATION CONTAINED IN THE UTILITY COMPANY RECORDS. WHERE THE WORK TO BE DONE CONFLICTS WITH ANY OF THESE UTILITIES, THE CONFLICTS SHALL BE RESOLVED AS SPECIFIED. CONFLICTS ARISING DURING THE COURSE OF CONSTRUCTION FROM UNFORESEEN CIRCUMSTANCES SHALL BE REPORTED TO THE INTERESTED UTILITY COMPANY AND BE RESOLVED BY THEM AND THE DESIGN ENGINEER AND APPROVED BY THE COS.
2. THE CITY WILL NOT PARTICIPATE IN THE COST OF CONSTRUCTION OR UTILITY RELOCATION.
3. IN ACCORDANCE WITH AAC R18-4-119, ALL MATERIALS ADDED AFTER JANUARY 1, 1993 WHICH MAY COME INTO CONTACT WITH DRINKING WATER SHALL CONFORM TO NATIONAL SANITATION FOUNDATION STANDARDS 60 AND 61.

HAUL ROUTE

HAUL ROUTE PERMITS ARE REQUIRED FOR ANY HAUL OPERATION WHICH UTILIZES CITY RIGHT-OF-WAY WITH A VOLUME EXCEEDING 5,000 C.Y.

SHEET INDEX

GENERAL NOTES

CITY OF SCOTTSDALE GENERAL CONSTRUCTION NOTES FOR PUBLIC WORKS CONSTRUCTION

1. ALL CONSTRUCTION IN THE PUBLIC RIGHT-OF-WAY OR IN EASEMENTS GRANTED FOR PUBLIC USE MUST CONFORM TO THE LATEST MARICOPA ASSOCIATION OF GOVERNMENTS (MAG) UNIFORM STANDARD SPECIFICATIONS AND UNIFORM STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION AS AMENDED BY THE LATEST VERSION OF THE CITY OF SCOTTSDALE (COS) SUPPLEMENTAL STANDARD SPECIFICATIONS AND SUPPLEMENTAL STANDARD DETAILS. IF THERE IS A CONFLICT, THE LATTER SHALL GOVERN.
2. THE ENGINEERING DESIGNS ON THESE PLANS ARE ONLY APPROVED BY THE CITY IN SCOPE AND NOT IN DETAIL. IF CONSTRUCTION QUANTITIES ARE SHOWN ON THESE PLANS, THEY ARE NOT VERIFIED BY THE CITY.
3. APPROVAL OF PLANS IS VALID FOR SIX (6) MONTHS. IF AN ENCROACHMENT PERMIT FOR THE CONSTRUCTION HAS NOT BEEN ISSUED WITHIN SIX MONTHS, THE PLANS SHALL BE RESUBMITTED TO THE CITY FOR RE-APPROVAL.
4. A PUBLIC WORKS INSPECTOR WILL INSPECT ALL WORKS WITHIN THE CITY OF SCOTTSDALE RIGHT-OF-WAY AND IN EASEMENTS. NOTIFY INSPECTION SERVICES 24 HOURS PRIOR TO STARTING OF CONSTRUCTION (TELEPHONE 480-312-5750).
5. WHENEVER EXCAVATION IS TO BE DONE, CALL THE "BLUE STAKE CENTER", 263-1100, TWO WORKING DAYS BEFORE EXCAVATION IS TO BEGIN. THE CENTER WILL SEE THAT THE LOCATION OF THE UNDERGROUND UTILITY LINES I S IDENTIFIED FOR THE PROJECT. CALL "COLLECT" IF NECESSARY.
6. ENCROACHMENT PERMITS ARE REQUIRED FOR ALL WORK IN PUBLIC RIGHTS-OF-WAY AND EASEMENTS GRANTED FOR PUBLIC PURPOSES. AN ENCROACHMENT PERMIT WILL BE ISSUED BY THE CITY UPON RECEIPT OF PAYMENT OF A BASE FEE PLUS A FEE FOR INSPECTION SERVICES TO BE PROVIDED BY THE CITY. COPIES OF ALL PERMITS SHALL BE RETAINED ONSITE AND SHALL BE AVAILABLE FOR INSPECTION AT ALL TIMES. FAILURE TO PRODUCE THE REQUIRED PERMITS WILL RESULT IN IMMEDIATE WORK STOPPAGE UNTIL THE PROPER PERMIT DOCUMENTATION IS OBTAINED.
7. ALL EXCAVATION AND GRADING WHICH IS NOT IN THE PUBLIC RIGHTS-OF-WAY OR NOT IN EASEMENTS GRANTED FOR PUBLIC USE MUST CONFORM TO CHAPTER 70, EXCAVATION AND GRADING, OF THE LATEST EDITION OF THE UNIFORM BUILDING CODE PREPARED BY THE INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS. A PERMIT FOR THIS GRADING MUST BE SECURED FROM THE CITY FOR A FEE ESTABLISHED BY THE UNIFORM BUILDING CODE.

INDEMNITY

1. CITY OF SCOTTSDALE WILL NOT BE RESPONSIBLE FOR REMOVAL, REPAIR, OR REPLACEMENT OF SIDEWALKS, LANDSCAPING OR ANY OTHER IMPROVEMENTS LOCATED WITHIN CITY EASEMENT(S) AS A RESULT OF ACCESS TO MAINTENANCE OF, OR REPAIRS TO THE WATERLINE SHOWN ON THESE PLANS.
2. CITY OF SCOTTSDALE WILL NOT BE RESPONSIBLE FOR REMOVAL, REPAIR, OR REPLACEMENT OF THE RETAINING WALLS OR OTHER IMPROVEMENTS WITHIN CITY EASEMENT(S) AS A RESULT OF ACCESS TO, MAINTENANCE OF, OR REPAIRS TO THE RETAINING WALLS SURROUNDING THE DETENTION BASINS SHOWN ON THESE PLANS.

"THE ENGINEER OF RECORD ON THESE PLANS HAS RECEIVED A COPY OF THE APPROVED STIPULATIONS FOR THIS PROJECT AND HAS DESIGNED THESE PLANS IN CONFORMANCE WITH THE APPROVED STIPULATIONS."

[signature] 3.26.12
ENGINEER: SCOTT A. AUDSLEY, P.E.

AS-BUILT CERTIFICATION

I HEREBY CERTIFY THAT THE " AS-BUILT " LOCATIONS SHOWN HEREON WERE PERFORMED UNDER MY SUPERVISION, AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

SIGNATURE DATE

SEAL

LAND SURVEY DATA

E/W STREET ALIGN	BEARDSLEY ROAD
N/S STREET	SCOTTSDALE ROAD ALIGN
DESCRIPTION	MC BC HH, N. BOUND LANE, DOWN 0.6'
TOWNSHIP	4N
RANGE	4E
SEC	26
DATE UPDATED	NA
COR	NW
NORTHING (f)	15,283.524
EASTING (f)	27,356.033
NAVD '88 ELEV (f)	1,662.878

BENCHMARK AND TOPO SOURCE

ONSITE TOPOGRAPHY IS BASED ON FIELD SURVEY PERFORMED BY WOOD/PATEL ON SEPT. 9, 2011. OFFSITE TOPOGRAPHY IS BASED ON AERIAL MAPPING COMPANY. INC., PROJECT NUMBER 04134, FLIGHT DATE JUNE 26, 2004

I HEREBY CERTIFY THAT ALL ELEVATIONS REPRESENTED ON THIS PLAN ARE BASED ON THE ELEVATION DATUM FOR THE CITY OF SCOTTSDALE BENCHMARK PROVIDED ABOVE.

CITY OF SCOTTSDALE
REVIEW & RECOMMENDED APPROVAL BY:

FIRE DEPT	[signature] 3·27·2012	GRADING & DRAINAGE	Md. Abdur Rahman 3/29/12
PLANNING	[signature] 3/28/2012	WATER & SEWER	[signature] 3/27/2012
TRAFFIC	N/A	PAVING	[signature] 3/27/2012
STRUCTURAL	[signature] 3/27/2012	RET. WALL	N/A

APPROVED BY:

Joseph O Morris 3/27/12
ENGINEERING COORDINATOR MANAGER OR DESIGNEE DATE

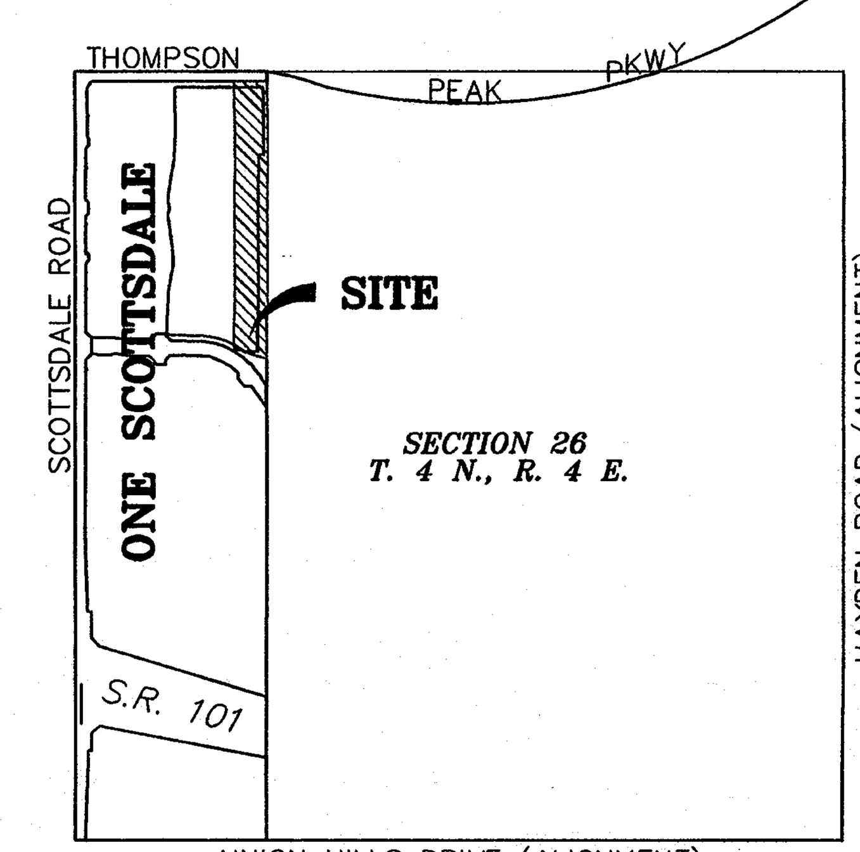
NO CONFLICT SIGNATURE BLOCK

UTILITY	UTILITY COMPANY	NAME OF COMPANY REPRESENTATIVE	TELEPHONE NUMBER	DATE SIGNED
ELECTRIC	ARIZONA PUBLIC SERVICE	SCOTT TIMAR	602-493-4421	01-26-12
TELEPHONE	CENTURY LINK	DEBBIE RAMSEY	-	01-26-12
NATURAL GAS	SOUTHWEST GAS	ZACH STEVENSON	602-861-1899	01-26-12
CABLE TV	COX COMMUNICATIONS	TRAFFIC MANAGEMENT	623-322-7086	01-26-12
-	SALT RIVER PROJECT	MATT STREEPER	-	01-30-12
-	-	-	-	-

ENGINEER'S CERTIFICATION

I SCOTT AUDSLEY, P.E., BEING THE ENGINEER OF RECORD FOR THIS DEVELOPMENT, HEREBY CERTIFY THAT ALL UTILITY COMPANIES LISTED ABOVE HAVE BEEN PROVIDED FINAL IMPROVEMENT PLANS FOR REVIEW, AND THAT ALL CONFLICTS IDENTIFIED BY THE UTILITIES HAVE BEEN RESOLVED. IN ADDITION, "NO CONFLICT" FORMS HAVE BEEN OBTAINED FROM EACH UTILITY COMPANY AND ARE INCLUDED IN THIS SUBMITTAL.

[signature] 3·26·12
SIGNATURE DATE



VICINITY MAP

N.T.S.

OWNER / DEVELOPER

ONE SCOTTSDALE HOLDINGS LLC.
7600 E. DOUBLETREE RANCH RD. SUITE 300
SCOTTSDALE, AZ 85258
CONTACT: MR. STEVE LOKEN
TEL.:(480) 367-7000
FAX (480) 367-7558

ENGINEER

WOOD, PATEL & ASSOCIATES INC.
2051 WEST NORTHERN, SUITE 100
PHOENIX, ARIZONA 85021
CONTACT: SCOTT A. AUDSLEY, P.E.
(602) 335-8500
(FAX) 335-8580

EARTHWORK QUANTITIES

QUANTITIES ARE IN PLACE ESTIMATES. NO SHRINK OR SWELL IS ASSUMED.

DESCRIPTION	QUANTITY
CUT	482 C.Y.
FILL	1,793 C.Y.

FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

COMMUNITY NUMBER	PANEL NUMBER	SUFFIX	DATE OF FIRM	FIRM ZONE	BASE FLOOD ELEVATION (IN AO ZONE, USE DEPTH)
045012	1245	H	SEPT. 30, 2005	AO	1'

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1-800-STAKE-IT
(OUTSIDE MARICOPA COUNTY)

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EAST DRAINAGE STORM DRAIN IMPROVEMENTS
SCOTTSDALE, ARIZONA

3RD SUBMITTAL

46844
SCOTT A. AUDSLEY
ARIZONA, U.S.A.
EXPIRES 09-30-13

DRAWN	DN
CHECKED	SA
DATE	MARCH 26, 2012
SCALE	N/A
JOB NO.	113713
SHEET	1 OF 7

Q.S.# 39-45
PLAN CHECK# 5405-11
52-DR-2011
PREPLAT# 24-PP-2011
S.A.# 378-SA-2011

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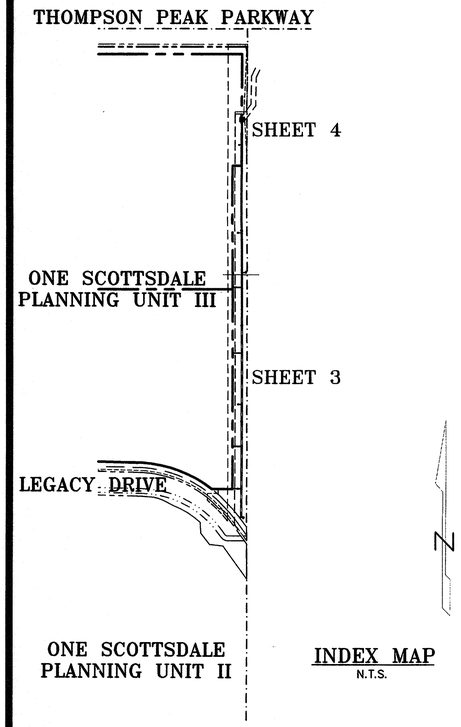

INDEX MAP
N.T.S.

LEGEND

1337	PROPOSED CONTOUR
1337	EXISTING CONTOUR
	PROPOSED RIGHT OF WAY
	ROADWAY CENTERLINE
	VERTICAL CURB & GUTTER
	EXISTING CURB AND GUTTER
INV 34.0	PROPOSED INVERT ELEVATION
TC 13.37	TOP OF CURB ELEVATION (FROM TOPO)
GE 13.37	GUTTER ELEVATION (FROM TOPO)
NG 13.37	NATURAL GROUND ELEVATION (FROM TOPO)
BC 13.37	BOTTOM OF CURB
CBC	CONCRETE BOX CULVERT
R/W	RIGHT OF WAY
HW	HIGH WATER
BOT	BOTTOM
INV	INVERT
SD	STORM DRAIN
TYP	TYPICAL
EG	EXISTING GROUND
ELEV	ELEVATION
	PROPOSED STAND PIPE
	EXISTING STORM DRAIN
	PROPOSED STORM DRAIN AND MANHOLE
	FIRE HYDRANT
	WATER PIPE AND VALVE
	SANITARY SEWER PIPE AND MANHOLE
	EXISTING PAVEMENT
	FLOWLINE
Q_{100} =5 cfs	EXISTING OFFSITE PEAK FLOW (100 YEAR)
	MISCELLANEOUS UTILITIES
	EXISTING STREET LIGHT
	EXISITNG TRAFFIC SIGNAL
	EXISITNG SIGN

QUANTITY SUMMARY (ESTIMATED)

ITEM #	DESCRIPTION	TOTAL
1	60" CIPP	1,654 LF
2	36" RGRCP CLASS III	40 LF
3	30" RGRCP CLASS III	107 LF
4	24" RGRCP CLASS III	86 LF
5	18" RGRCP CLASS III	10 LF
6	STORM DRAIN PLUG MAG 427	6 EA
7	STORM DRAIN MANHOLE MAG 521 & 522	4 EA
8	CATCH BASIN MAG 535 TYPE "F"	3 EA
9	DUAL CATCH BASIN MAG 535 TYPE "F"	1 EA
10	NEW CONCRETE JUNCTION STRUCTURE	1 EA
11	RETROFIT EXISTING CONCRETE JUNCTION STRUCTURE	1 EA
12	RIP-RAP (D50=8")	7 CY
13	RIP-RAP (D50=6")	54 CY
14	REMOVE EXISTING CHANNEL DROP STRUCTURE	3 EA
15	REMOVE EXISTING DROP INLET HEADWALL STRUCTURE	1 EA
16	REMOVE EXISTING HEADWALL	1 EA
17	REMOVE EXISTING 54" RGRCP	127 LF

PARCEL DESCRIPTION

THE WEST HALF OF THE WEST HALF OF SECTION 26, TOWNSHIP 4 NORTH, RANGE 4 EAST OF THE GILA AND
SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA;

EXCEPT THE NORTH 100 FEET OF THE WEST 165 FEET OF THAT PART OF THE NORTHWEST QUARTER OF SECTION 26, TOWNSHIP 4 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, LYING SOUTH OF AND ADJOINING A STRAIGHT LINE DRAWN AT A RIGHT ANGLE FROM A POINT ON THE WEST LINE OF SAID NORTHWEST QUARTER OF SAID SECTION 26, SAID POINT BEING 2367.00 FEET SOUTH OF THE NORTHWEST CORNER OF SAID SECTION 26; AND ALSO

EXCEPT THAT PORTION OF THE WEST HALF OF THE WEST HALF OF SECTION 26, TOWNSHIP 4 NORTH, RANGE 4 EAST OF THE GILA AND SALT RIVER BASE AND MERIDIAN, MARICOPA COUNTY, ARIZONA, WHICH LIES WITHIN THE PARCEL OF LAND DESCRIBED AS FOLLOWS:

BEGINNING AT A UNITED STATES GENERAL LAND OFFICE BRASS CAP MARKING THE SOUTHWEST CORNER OF SAID SECTION 26; THENCE ALONG THE WEST LINE OF SAID SECTION 26, NORTH 0 DEGREES 02 MINUTES 06 SECONDS WEST, 2642.06 FEET TO A MARICOPA COUNTY HIGHWAY DEPARTMENT BRASS CAP MARKING THE WEST QUARTER CORNER OF SAID SECTION 26; THENCE CONTINUING ALONG SAID WEST LINE, NORTH 0 DEGREES 02 MINUTES 06 SECONDS WEST 170.94 FEET TO A POINT 2467.00 FEET SOUTH OF THE NORTHWEST CORNER OF SAID SECTION 26; THENCE LEAVING SAID WEST LINE, NORTH 89 DEGREES 57 MINUTES 54 SECONDS EAST 52.30 FEET TO A POINT HEREINAFTER CALLED POINT "A";
THENCE SOUTH 01 DEGREES 32 MINUTES 53 SECONDS EAST, 1238.42 FEET TO A POINT HEREINAFTER CALLED POINT "B";
THENCE NORTH 89 DEGREES 57 MINUTES 54 SECONDS EAST, 25.00 FEET TO A LINE PARALLEL WITH AND
110.00 FEET EAST OF THE WEST LINE OF SAID SECTION 26;
THENCE ALONG SAID PARALLEL LINE, SOUTH 0 DEGREES 02 MINUTES 06 SECONDS EAST, 175.00 FEET;
THENCE SOUTH 42 DEGREES 29 MINUTES 44 SECONDS EAST, 74.07 FEET;
THENCE SOUTH 73 DEGREES 12 MINUTES 54 SECONDS EAST, 1212.44 FEET TO THE EAST LINE OF SAID WEST HALF OF THE WEST HALF;
THENCE ALONG SAID EAST LINE, SOUTH 0 DEGREES 01 MINUTES 50 SECONDS EAST, 421.96 FEET;
THENCE NORTH 79 DEGREES 08 MINUTES 01 SECONDS WEST, 1176.82 FEET;
THENCE SOUTH 50 DEGREES 34 MINUTES 39 SECONDS WEST, 71.10 FEET TO A LINE PARALLEL WITH AND 110.00 FEET EAST OF THE WEST LINE OF SAID SECTION 26;
THENCE ALONG SAID PARALLEL LINE, SOUTH 0 DEGREES 02 MINUTES 06 SECONDS EAST, 125.00 FEET;
THENCE SOUTH 89 DEGREES 57 MINUTES 54 SECONDS WEST, 25.00 FEET TO A POINT HEREINAFTER CALLED POINT "C";
THENCE SOUTH 01 DEGREES 28 MINUTES 41 SECONDS WEST, 625.30 FEET TO THE SOUTH LINE OF SAID SECTION 26 AND TO A POINT HEREINAFTER CALLED POINT "D";
THENCE ALONG SAID SOUTH LINE, NORTH 89 DEGREES 58 MINUTES 35 SECONDS WEST, 68.49 FEET TO THE POINT OF BEGINNING; AND ALSO

EXCEPT THAT PORTION OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SAID SECTION 26,
DESCRIBED AS FOLLOWS:

COMMENCING AT A UNITED STATES GENERAL LAND OFFICE BRASS CAP MARKING THE SOUTHWEST CORNER
OF SAID SECTION 26, BEING NORTH 89 DEGREES 58 MINUTES 35 SECONDS WEST 2641.00 FEET FROM A 3/4 INCH REBAR MARKING THE SOUTH QUARTER CORNER OF SAID SECTION 26;
THENCE ALONG THE WEST LINE OF SAID SECTION 26, NORTH 0 DEGREES 02 MINUTES 26 SECONDS WEST 625.01 FEET TO A POINT BEING SOUTH 0 DEGREES 02 MINUTES 26 SECONDS EAST 2015.76 FEET FROM THE MARICOPA COUNTY HIGHWAY BRASS CAP MARKING THE WEST QUARTER CORNER OF SAID SECTION 26;
THENCE NORTH 89 DEGREES 57 MINUTES 34 SECONDS EAST 110.00 FEET TO THE POINT OF BEGINNING ON THE SOUTHERLY RIGHT OF WAY LINE OF STATE ROUTE 101L (PIMA FREEWAY);
THENCE ALONG SAID SOUTHERLY RIGHT OF WAY LINE, SOUTH 89 DEGREES 57 MINUTES 54 SECONDS WEST
25.00 FEET;
THENCE CONTINUING ALONG SAID SOUTHERLY RIGHT OF WAY LINE, SOUTH 01 DEGREES 28 MINUTES 41 SECONDS WEST 50.00 FEET;
THENCE NORTH 27 DEGREES 44 MINUTES 09 SECONDS EAST 56.49 FEET TO THE POINT OF BEGINNING; AND ALSO

EXCEPT A PARCEL OF LAND LYING WITHIN SAID SECTION 26, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWEST CORNER OF SAID SECTION 26;
THENCE ALONG THE SOUTH LINE OF SAID SECTION, SOUTH 89 DEGREES 58 MINUTES 26 SECONDS EAST, A DISTANCE OF 68.49 FEET TO THE EASTERLY LINE OF PARCEL NO. 7-5398, TRACT NO. 1, AS RECORDED
IN INSTRUMENT NO. 2002-0294002, AND THE POINT OF BEGINNING;
THENCE LEAVING SAID SOUTH LINE ALONG SAID EASTERLY LINE, NORTH 01 DEGREES 28 MINUTES 38 SECONDS EAST, A DISTANCE OF 625.29 FEET;
THENCE NORTH 89 DEGREES 57 MINUTES 52 SECONDS EAST, A DISTANCE OF 25.00 FEET;
THENCE NORTH 00 DEGREES 02 MINUTES 08 SECONDS WEST, A DISTANCE OF 124.88 FEET;
THENCE NORTH 50 DEGREES 34 MINUTES 37 SECONDS EAST, A DISTANCE OF 71.10 FEET;
THENCE SOUTH 79 DEGREES 08 MINUTES 03 SECONDS EAST, A DISTANCE OF 1176.65 FEET TO THE EAST
LINE OF THE WEST HALF OF THE WEST HALF OF SAID SECTION 26;
THENCE LEAVING SAID EASTERLY LINE ALONG SAID EAST LINE, SOUTH 00 DEGREES 02 MINUTES 11 SECONDS EAST, A DISTANCE OF 573.88 FEET TO THE SOUTH LINE OF SAID SECTION;
THENCE LEAVING SAID EAST LINE ALONG SAID SOUTH LINE, NORTH 89 DEGREES 58 MINUTES 26 SECONDS
WEST, A DISTANCE OF 1251.89 FEET TO THE POINT OF BEGINNING.

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EAST DRAINAGE STORM DRAIN IMPROVEMENTS
SCOTTSDALE, ARIZONA

3RD SUBMITTAL

EXPIRES 09-30-13

DRAWN	DN
CHECKED	SA
DATE	MARCH 26, 2012
SCALE	N/A
JOB NO.	113713
SHEET	2 OF 7

Q.S.# 39-45
PLAN CHECK# 5405-11
PREPLAT# 24-PP-2011
52-DR-2011
S.A.# 378-SA-2011

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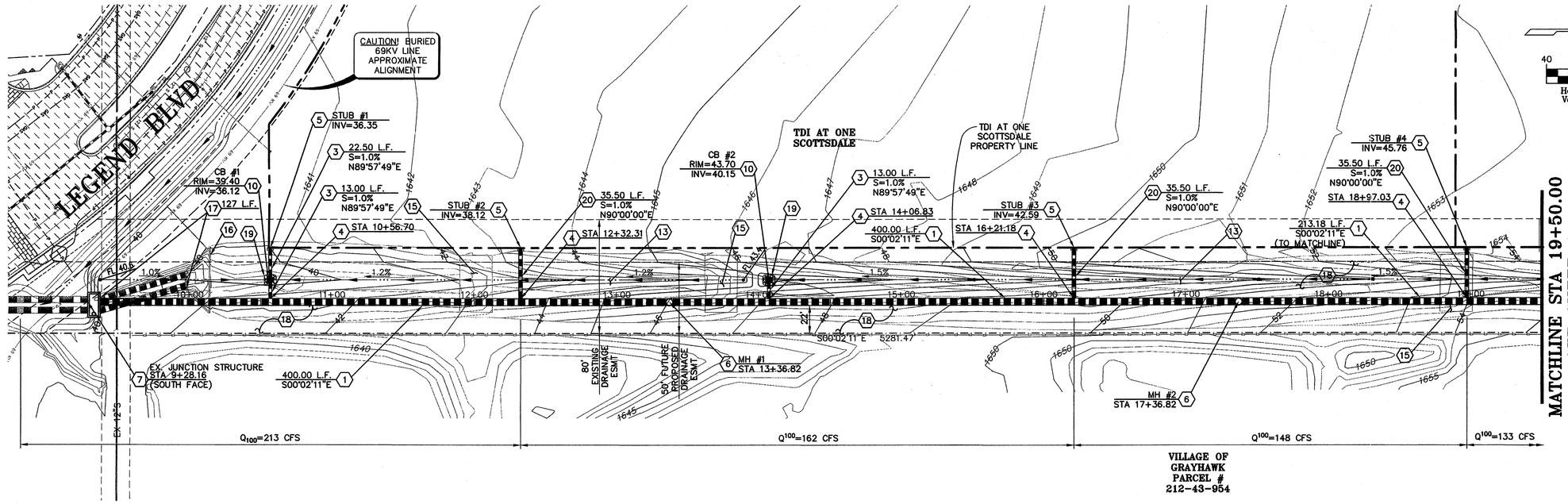

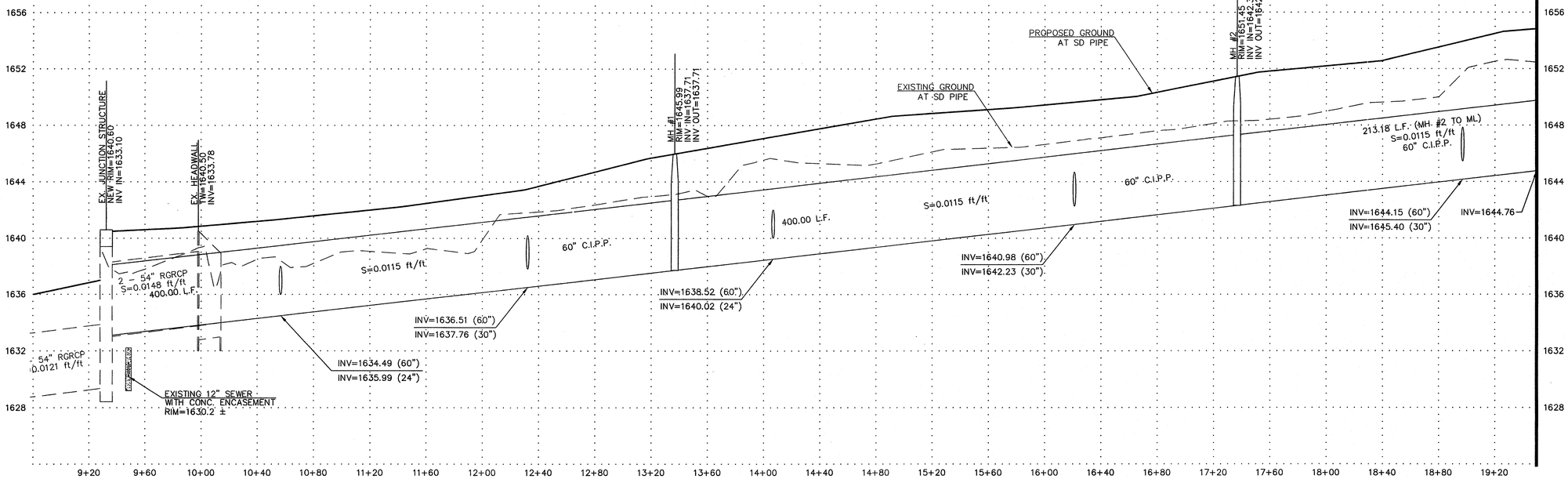

1. INSTALL 60" CIPP STORM DRAIN PIPE. TRENCH BEDDING AND BACKFILL PER C.O.S. STD. DET. 2201.
3. INSTALL 24" RGRCP CLASS III STORM DRAIN PIPE. TRENCH BEDDING AND BACKFILL PER C.O.S. STD. DET. 2201.
4. CONNECT RGRCP STORM DRAIN LATERAL TO 60" CIPP PER M.A.G. STD. DET. 524, TYPE 1.
5. INSTALL STORM DRAIN PLUG PER M.A.G. STD. DET. 427. SIZE PER PLAN.
6. CONSTRUCT STORM DRAIN MANHOLE WITH WATER TIGHT LID PER M.A.G. STD. DET. 521 & 522. ADJUST MANHOLE RIM TO FINAL GRADE PER C.O.S. STD. DET. 2270.
7. RETROFIT EXISTING CONCRETE JUNCTION STRUCTURE PER STRUCTURAL DETAILS ON SHEET 6.
10. INSTALL CATCH BASIN PER M.A.G. STD. DET. 535, TYPE "F".
13. BACKFILL EXISTING CHANNEL AND GRADE SWALE PER PLAN.
15. REMOVE EXISTING CHANNEL DROP STRUCTURE.
16. REMOVE EXISTING DROP INLET HEADWALL STRUCTURE.
17. REMOVE EXISTING 54" RGRCP STORM DRAIN PIPE TO LIMITS SHOWN.
18. LANDSCAPE IMPROVEMENTS BY OTHERS.
19. INSTALL INDIGENOUS/NATIVE STONE RIP-RAP (D_{50}=8", 2' THICK, AREA PER PLAN). REFERENCE GRADATION TABLE ON SHEET 5.
20. INSTALL 30" RGRCP CLASS III STORM DRAIN PIPE. TRENCH BEDDING AND BACKFILL PER C.O.S. STD. DET. 2201.

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ONE SCOTTSDALE PU III

EAST DRAINAGE STORM DRAIN IMPROVEMENTS

SCOTTSDALE, ARIZONA

Q.S.# 39-45

PLAN CHECK# 5405-11

PREPLAT# 24-PP-2011 52-DR-2011

3RD SUBMITTAL

Professional Engineer (Civil) Certificate No. 46844 SCOTT A AUDSLEY Date Signed 3-26-12 ARIZONA, U.S.A.

EXPIRES 09-30-13

S.A.# 378-SA-2011

DRAWN	DN
CHECKED	SA
DATE	MARCH 26, 2012
SCALE	N/A
JOB NO.	113713
SHEET	3 OF 7

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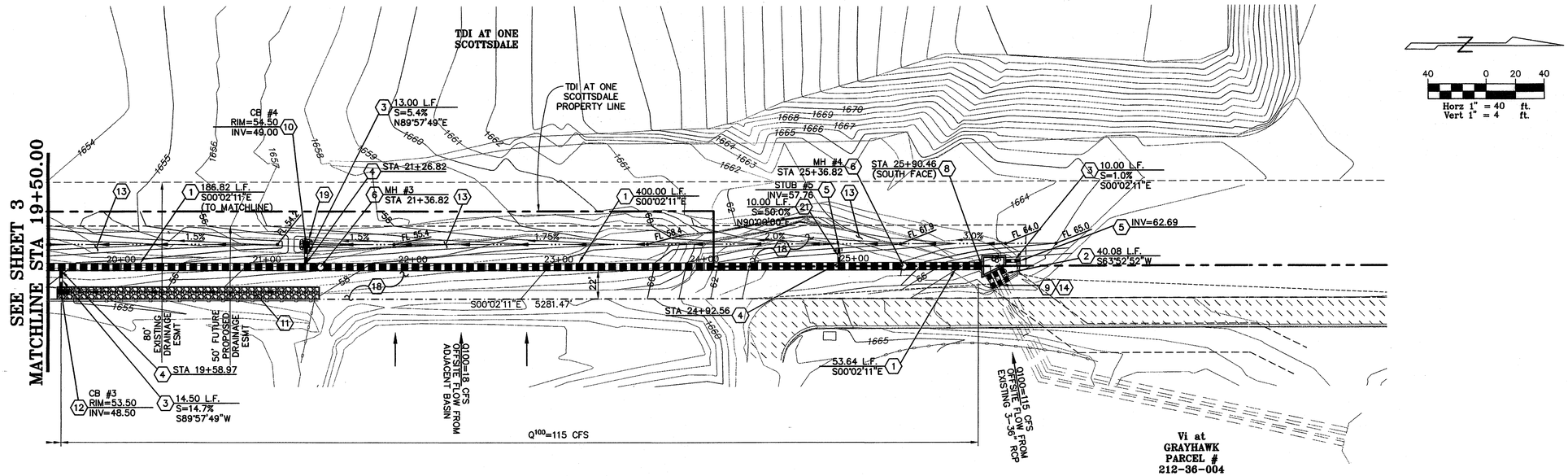

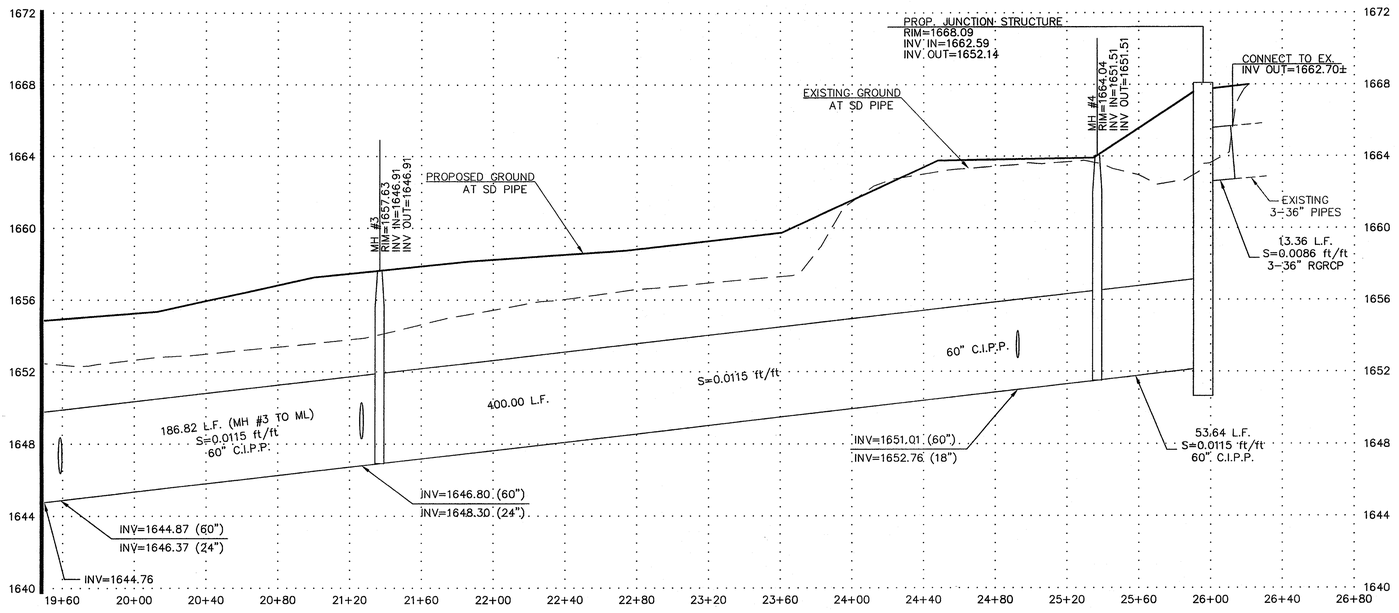

1. INSTALL 60" CIPP STORM DRAIN PIPE. TRENCH BEDDING AND BACKFILL PER C.O.S. STD. DET. 2201.
2. INSTALL 36" RGRCP CLASS III STORM DRAIN PIPE. TRENCH BEDDING AND BACKFILL PER C.O.S. STD. DET. 2201.
3. INSTALL 24" RGRCP CLASS III STORM DRAIN PIPE. TRENCH BEDDING AND BACKFILL PER C.O.S. STD. DET. 2201.
4. CONNECT RGRCP STORM DRAIN LATERAL TO 60" CIPP PER M.A.G. STD. DET. 524, TYPE 1.
5. INSTALL STORM DRAIN PLUG PER M.A.G. STD. DET. 427. SIZE PER PLAN.
6. CONSTRUCT STORM DRAIN MANHOLE WITH WATER TIGHT LID PER M.A.G. STD. DET. 521 & 522. ADJUST MANHOLE RIM TO FINAL GRADE PER C.O.S. STD. DET. 2270.
8. CONSTRUCT CONCRETE JUNCTION STRUCTURE PER STRUCTURAL DETAILS ON SHEET 6.
9. CONNECT PROPOSED 36" RGRCP TO EXISTING 36" RCP. CONTRACTOR TO FIELD VERIFY EXACT LOCATION/INVERT PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF ANY DISCREPANCIES.
10. INSTALL CATCH BASIN PER M.A.G. STD. DET. 535, TYPE "F".
11. CONSTRUCT OFFSITE BASIN OVERFLOW CATCHMENT PER DETAILS ON SHEET 5. CONTRACTOR SHALL FIELD VERIFY REQUIRED LENGTH OF CATCHMENT TO MATCH EXISTING WALL OPENINGS.
12. INSTALL DUAL M.A.G. 535 CATCH BASIN PER M.A.G. STD. DET. 535, TYPE "F".
13. BACKFILL EXISTING CHANNEL AND GRADE SWALE PER PLAN.
14. REMOVE EXISTING HEADWALL.
18. LANDSCAPE IMPROVEMENTS BY OTHERS.
19. INSTALL INDIGENOUS/NATIVE STONE RIP-RAP (D_{50}=8", 2' THICK, AREA PER PLAN). REFERENCE GRADATION TABLE ON SHEET 5.
21. INSTALL 18" RGRCP CLASS III STORM DRAIN PIPE. TRENCH BEDDING AND BACKFILL PER C.O.S. STD. DET. 2201.

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SHEET	4 OF 7

Q.S.# 39-45

PLAN CHECK# 5405-11

PREPLAT# 24-PP-2011

52-DR-2011

SA.# 378-SA-2011

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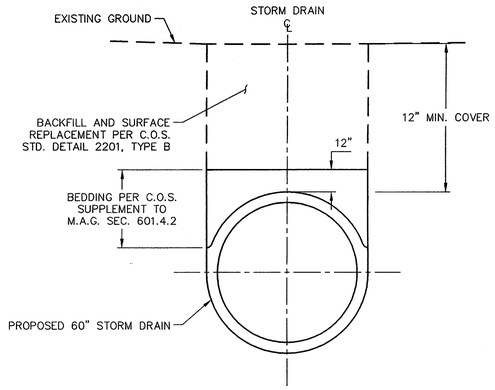
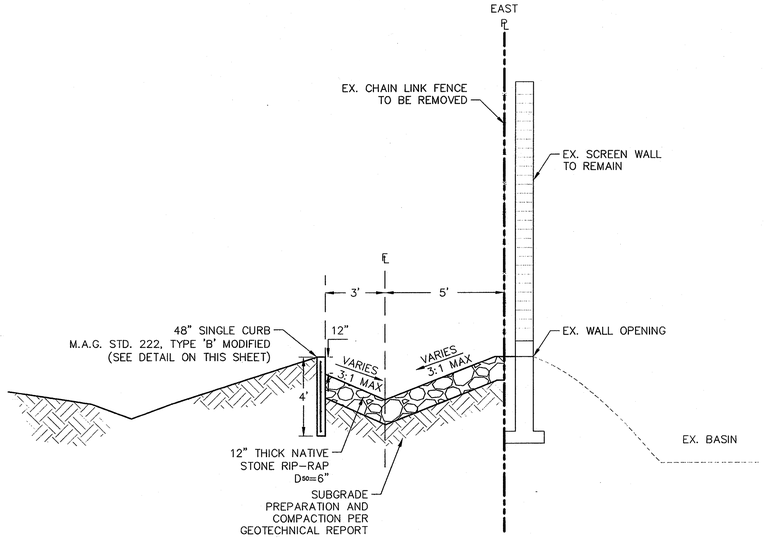
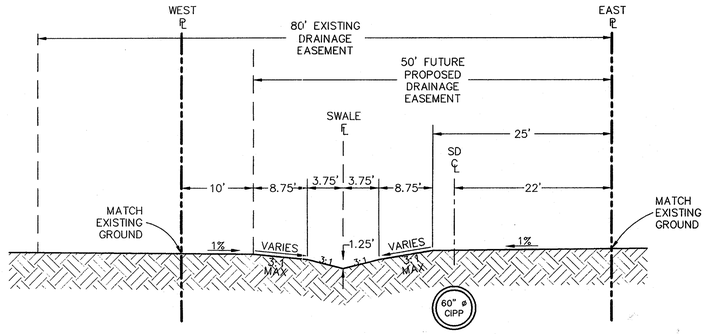


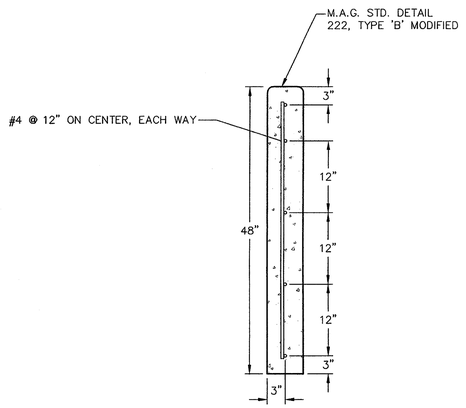
CAST IN PLACE PIPE TRENCH DETAIL
N.T.S.



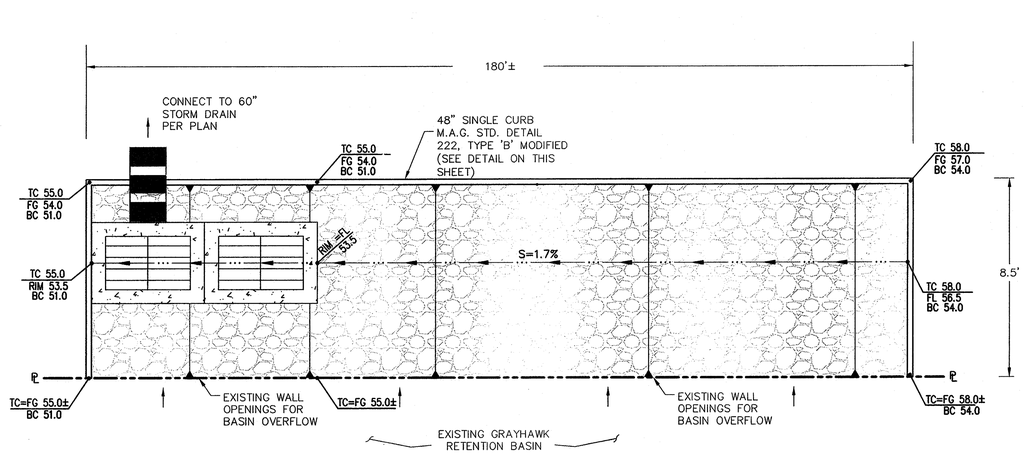
RIP-RAP CATCHMENT SECTION VIEW
N.T.S.



TYPICAL SECTION
N.T.S.



48" MODIFIED SINGLE CURB DETAIL
N.T.S.



RIP-RAP CATCHMENT PLAN VIEW
N.T.S.

INDIGENOUS/NATIVE STONE RIPRAP GRADATION TABLE

PERCENT PASSING	SIZE	D_{50} CLASS, INCHES			
		4	6	8	12
100 TO 90	2.0 D_{50}	8	12	16	24
85 TO 70	1.5 D_{50}	6	9	12	18
50 TO 30	1.0 D_{50}	4	6	8	12
15 TO 5	0.67 D_{50}	3	4	5	8
5 TO 0	0.33 D_{50}	1	2	3	4

INSTALL LOOSE RIPRAP PER M.A.G. SPEC. 200.

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3RD SUBMITTAL

EXPIRES 09-30-13

DRAWN	DN
CHECKED	SA
DATE	MARCH 26, 2012
SCALE	N/A
JOB NO.	113713
SHEET	5 OF 7

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Q.S.# 39-45
PLAN CHECK# 5405-11
PREPLAT# 24-PP-2011
52-DR-2011
S.A.# 378-SA-2011

S:\2011\113713\Dwg\lmp\ 3713-05DT.dwg

BUILDING CODE:

2006 EDITION OF THE INTERNATIONAL BUILDING CODE, WITH CITY OF SCOTTSDALE AMENDMENTS.

LOADS:

SUPERIMPOSED DEAD LOAD ON VAULT LID = 110 PSF. (MAX 1' SOIL ABOVE).
LIVE LOAD = 100 PSF.

FOUNDATIONS:

SOIL REPORT BY GEC; JOB NO.06-0501.R01; DATED JUNE 21,2007; MAT SLAB SHALL BEAR ON FIRM, UNDISTURBED SOIL OR COMPACTED FILL IN ACCORDANCE WITH THE ABOVE REPORT. BOTTOM OF MAT SLAB TO BE 15" MINIMUM BELOW FINISHED GRADE. (THIS MAT SLAB DEPTH IS A MINIMUM AND THE CONTRACTOR SHALL COORDINATE WITH SOILS REPORT AND OTHERS TRADES TO ENSURE THIS MINIMUM IS SUFFICIENT FOR THE WORK.) (COMPACTED FILL SHALL EXTEND 2' BEYOND EACH EDGE OF FOOTING.) FINISHED GRADE IS DEFINED AS THE LOWEST ADJACENT GRADE WITHIN 5 FEET. DESIGN SOIL BEARING VALUE = 5000 PSF. FOUNDATION EXCAVATIONS SHALL BE INSPECTED BY SOILS ENGINEER PRIOR TO PLACEMENT OF CONCRETE.

LATERAL BACKFILL PRESSURE = 54 PSF/FT FOR RESTRAINED WALLS.

CONCRETE:

MINIMUM 28 DAY STRENGTH 4,000 PSI (TYPE II)

MECHANICALLY VIBRATE ALL CONCRETE WHEN PLACED. MAXIMUM SLUMP 4 1/2" FOR CONCRETE WITHOUT PLASTICIZER. IF PLASTICIZER IS USED, A HIGHER FINAL SLUMP MAY BE ALLOWED UPON STRUCTURAL ENGINEER'S APPROVAL.

REINFORCING:

ASTM A615 (Fy = 60 KSI) DEFORMED BARS FOR ALL BARS. ALL GRADE 60 REINFORCING TO BE WELDED SHALL BE ASTM A706. WELDED WIRE FABRIC PER ASTM A185, WIRE PER ASTM A82. NO TACK WELDING OF REINFORCING BARS ALLOWED WITHOUT PRIOR REVIEW OF PROCEDURE WITH THE STRUCTURAL ENGINEER. LATEST ACI CODE AND DETAILING MANUAL APPLY. CLEAR CONCRETE COVERAGES AS FOLLOWS:

CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH -------- 3"
EXPOSED TO EARTH OR WEATHER
#6 OR LARGER ---------- 2"
#5 AND SMALLER ---------- 1 1/2"

ALL OTHER PER LATEST EDITION OF ACI 318.

LAP SPLICES IN CONCRETE:

LAP SPLICES, UNLESS NOTED OTHERWISE, SHALL BE CLASS "B" TENSION LAP SPLICES PER LATEST EDITION OF ACI 318. STAGGER SPLICES A MINIMUM OF ONE LAP LENGTH. LAPS IN WELDED WIRE FABRIC SHALL BE MADE SO THAT THE OVERLAP, MEASURED BETWEEN OUTERMOST CROSS WIRES OF EACH FABRIC SHEET, IS NOT LESS THAN THE SPACING OF CROSS WIRES PLUS 2 INCHES. ALL WELDED WIRE FABRIC SHALL BE CHAIRED TO ENSURE PROPER CLEARANCES.

ALL SPLICE LOCATIONS SUBJECT TO APPROVAL BY THE STRUCTURAL ENGINEER. PROVIDE BENT CORNER BARS TO MATCH AND LAP WITH HORIZONTAL BARS AT ALL CORNERS AND INTERSECTIONS PER TYPICAL DETAILS. REINFORCING BAR SPACING GIVEN ARE MAXIMUM ON CENTERS. ALL BARS PER CRSI SPECIFICATIONS AND HANDBOOK. DOWEL ALL VERTICAL REINFORCING TO FOUNDATION WITH STANDARD 90-DEGREE HOOKS UNLESS NOTED OTHERWISE. SECURELY TIE ALL BARS IN LOCATION BEFORE PLACING CONCRETE.

EPOXY ANCHORS IN CONCRETE AND MASONRY:

INJECTABLE ADHESIVE SHALL BE USED FOR INSTALLATION OF REINFORCING STEEL DOWELS OR THREADED ANCHOR RODS AND INSERTS INTO NEW OR EXISTING CONCRETE OR SOLID GROUTED CONCRETE MASONRY UNITS ONLY WHERE SPECIFIED ON PLANS. IF USE IS REQUESTED FOR OTHER THAN WHERE NOTED CONTACT STRUCTURAL ENGINEER THROUGH ARCHITECT FOR APPROVAL. ADHESIVE SHALL BE FURNISHED IN SIDE BY SIDE PACKS WHICH KEEP COMPONENT A AND COMPONENT B SEPARATE. USE ONLY INJECTION TOOLS AND STATIC MIXING NOZZLES RECOMENDED BY MANUFACTURER. MANUFACTURER'S INSTRUCTIONS SHALL BE FOLLOWED.

IN CONCRETE:

ANCHORS USED MUST HAVE I.C.C. APPROVAL AND INCLUDE SIMPSON SET-XP (ERS-2508) AND HILTI HIT-RE500-SD (ERS-2322) OR APPROVED EQUIVALENT. THE USE OF ANY EPOXY ANCHOR MUST BE APPROVED BY THE ENGINEER OF RECORD PRIOR TO INSTALLATION.

STRUCTURAL FILL:

ALL FILL PLACED TO SUPPORT SLABS ON GRADE, BEHIND PERMANENT WALLS, AND AROUND ALL DRAINS SHALL CONSIST OF WELL GRADED, GRANULAR MATERIAL PER THE SPECIFICATIONS. SOILS FOR STRUCTURAL FILL SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER. STRUCTURAL FILL SHALL BE PLACED ON SOUND NATIVE MATERIAL. PROOF-ROLL CUT AREAS WHICH PROVIDE SUPPORT FOR PERMANENT STRUCTURES. AREAS WHICH ARE EXCESSIVELY YIELDING, AS DETERMINED BY THE CONTINUOUS OBSERVATION OF THE GEOTECHNICAL ENGINEER, SHALL BE OVEREXCAVATED AND REPLACED WITH STRUCTURAL FILL. STRUCTURAL FILL SHALL BE PLACED PER THE SPECIFICATION.

LATERAL PRESSURE ON SUBGRADE WALLS:

THE DESIGN PRESSURES FOR SUBGRADE WALLS ARE BASED ON A "DRAINED" CONDITION. SEE CIVIL AND MECHANICAL DRAWINGS FOR SUBGRADE DRAINAGE SYSTEM. SEE GEOTECHNICAL REPORT FOR COMPACTION REQUIREMENTS AT SUBGRADE WALLS. SUBGRADE WALLS AND SUPPORTING SLABS SHALL HAVE ATTAINED THEIR FULL CONCRETE STRENGTH BEFORE PLACING ANY BACKFILL U.N.O. THE CONTRACTOR SHALL PROVIDE TEMPORARY BRACES FOR WALLS IF BACKFILL IS PLACED BEFORE WALLS AND SLABS ACHIEVE FULL CONCRETE STRENGTH.

SHOP DRAWINGS:

SHOP DRAWINGS SHALL BE SUBMITTED FOR ALL STRUCTURAL ITEMS IN ADDITION TO ITEMS REQUIRED BY ARCHITECTURAL SPECIFICATIONS.

THE CONTRACTOR SHALL REVIEW ALL SHOP DRAWINGS PRIOR TO SUBMITTAL. ITEMS NOT IN ACCORDANCE WITH CONTRACT DOCUMENTS SHALL BE FLAGGED UPON HIS REVIEW.

VERIFY ALL DIMENSIONS WITH ARCHITECT AND ALL FINISHED GRADE WITH CIVIL DRAWINGS.

ANY CHANGES, SUBSTITUTIONS, OR DEVIATIONS FROM CONTRACT DOCUMENTS SHALL BE CLOUDED BY MANUFACTURER OR FABRICATOR. ANY OF THE AFOREMENTIONED WHICH ARE NOT CLOUDED OR FLAGGED BY SUBMITTING PARTIES, SHALL NOT BE CONSIDERED APPROVED AFTER ENGINEER'S REVIEW, UNLESS NOTED ACCORDINGLY.

THE ENGINEER HAS THE RIGHT TO APPROVE OR DISAPPROVE ANY CHANGES TO CONTRACT DOCUMENTS AT ANYTIME BEFORE OR AFTER SHOP DRAWING REVIEW.

THE SHOP DRAWINGS DO NOT REPLACE THE CONTRACT DOCUMENTS. ITEMS OMITTED OR SHOWN INCORRECTLY AND ARE NOT FLAGGED BY THE STRUCTURAL ENGINEER OR ARCHITECT ARE NOT TO BE CONSIDERED CHANGES TO CONTRACT DOCUMENTS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAKE SURE ITEMS ARE CONSTRUCTED TO CONTRACT DOCUMENTS.

THE ADEQUACY OF ENGINEERING DESIGNS AND LAYOUT PERFORMED BY OTHERS RESTS WITH THE DESIGNING OR SUBMITTING AUTHORITY.

REVIEWING IS INTENDED ONLY AS AN AID TO THE CONTRACTOR IN OBTAINING CORRECT SHOP DRAWINGS. RESPONSIBILITY FOR CORRECTNESS SHALL REST WITH THE CONTRACTOR.

GENERAL:

ENTIRE CONTRACT DOCUMENTS SHALL BE USED TO BUILD BUILDING. SOME CRITICAL ITEMS REQUIRED BY OTHER DISCIPLINES MAY NOT BE SHOWN ON STRUCTURAL DRAWING (i.e. WALL, FLOOR AND ROOF OPENING, ARCHITECTURAL, MECHANICAL AND PLUMBING LOADS, SUPPORT PLATES ETC.)

ITEMS SHOWN BY OTHER DISCIPLINES WITH REFERENCE TO STRUCTURAL DRAWING BUT NOT SHOWN ON THESE STRUCTURAL DOCUMENT SHALL BE CONSIDERED DESIGN BUILD ITEMS. CONTRACTOR SHALL SUBMIT DESIGN BY OTHERS FOR REVIEW.

THE STRUCTURAL CONSTRUCTION DOCUMENTS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, SHORING FOR LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. THE STRUCTURAL ENGINEER SHALL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S MEANS, METHODS, TECHNIQUES, SEQUENCES FOR PROCEDURE OF CONSTRUCTION, OR THE SAFETY PRECAUTIONS AND THE PROGRAMS INCIDENT THERETO (NOR SHALL OBSERVATION VISITS TO THE SITE INCLUDE INSPECTION OF THESE ITEMS).

CONSTRUCTION MATERIALS SHALL BE SPREAD OUT IF PLACED ON FRAMED CONSTRUCTION. LOAD SHALL NOT EXCEED THE DESIGN LIVE LOAD PER SQUARE FOOT.

WHERE REFERENCE IS MADE TO VARIOUS TEST STANDARDS FOR MATERIALS, SUCH STANDARDS SHALL BE THE LATEST EDITION AND/OR ADDENDA.

ESTABLISH AND VERIFY ALL OPENINGS AND INSERTS FOR ARCHITECTURAL, MECHANICAL, PLUMBING AND ELECTRICAL WITH APPROPRIATE TRADES, DRAWINGS AND SUBCONTRACTORS PRIOR TO CONSTRUCTION.

OPTIONS ARE FOR CONTRACTOR'S CONVENIENCE. IF HE CHOOSES AN OPTION, CONTRACTOR SHALL BE RESPONSIBLE FOR ALL NECESSARY CHANGES AND SHALL COORDINATE ALL DETAILS.

NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT.

ALL DIMENSIONS SHOWN (INCLUDING ELEVATIONS) ON STRUCTURAL DRAWINGS ARE TO ASSIST CONTRACTOR IN VERIFICATION. SCALING DIMENSIONS FROM DRAWINGS IS NOT PERMITTED. LOCATION OF ALL ITEMS SHALL BE DETERMINED BY DIMENSIONS OR NOTES ONLY; DO NOT USE GRAPHIC APPEARANCE TO ASSUME SPECIFIC LOCATIONS.

CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL DIMENSIONS WITH ARCHITECTURAL AND FINISHED GRADE WITH CIVIL DRAWINGS PRIOR TO START OF CONSTRUCTION. RESOLVE ANY DISCREPANCY WITH THE ARCHITECT.

WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL STRUCTURAL NOTES AND SPECIFICATIONS, THE GREATER REQUIREMENTS SHALL GOVERN.

ANY ENGINEERING DESIGN, PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW, SHALL BEAR THE SEAL OF AN ENGINEER REGISTERED IN THE STATE OF JURISDICTION.

SUPPLIER OF ENGINEERED STRUCTURAL COMPONENTS (i.e. STEEL JOISTS, STAIRS, PRECAST ITEMS) SHALL BE RESPONSIBLE FOR COMPLETE DESIGN AND SHALL USE ENTIRE CONTRACT DOCUMENTS TO INCLUDE ALL LOADS AND DETAIL REQUIREMENTS FROM ALL DISCIPLINES. SUPPLIER SHALL PROVIDE ADDITIONAL MATERIAL REQUIRED TO MEET ALL THEIR REQUIREMENTS FOR INSTALLATION (i.e. WIDER BEARING PLATES, SHIMS, ERECTION BOLTS ETC.).

STRUCTURAL STEEL SUPPLIER SHALL FURNISH BOLTS FOR OSHA CONNECTIONS (SEE DRAWINGS FOR DETAILS).

WALL SHORING SHALL BE INSTALLED PRIOR TO BACKFILLING BEHIND ALL RETAINING WALLS, UNLESS ALL RESTRAINING SLABS ARE INSTALLED. USE HANDTAPPING ONLY WHEN WITHIN 8'-0", OR WITHIN HALF THE WALL HEIGHT OF BACKFILLED WALL.

BUILDING TOLERANCES:

STANDARD TOLERANCES SHALL BE BASED ON THE REQUIREMENTS OF THE AISC CODE OF STANDARD PRACTICE AND ACI 117, STANDARD SPECIFICATIONS FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS.

EXISTING STRUCTURE:

EXISTING STRUCTURAL DIMENSIONS AND MEMBER SIZES ARE FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD PRIOR TO FABRICATION. THE CONTRACTOR SHALL VERIFY THE ACTUAL CONFIGURATION OF EXISTING CONSTRUCTION AND THE CONDITION OF THE STRUCTURE BEFORE BEGINNING WORK. ANY DISCREPANCIES OR UNSOUND CONDITIONS SHALL BE REPORTED TO THE ARCHITECT FOR RESOLUTION BEFORE BEGINNING WORK. REFER TO ARCHITECTURAL PLANS FOR DIMENSIONS, EMBEDMENTS, AND OPENINGS NOT SHOWN. REFER TO MECHANICAL AND ELECTRICAL PLANS FOR DUCTS, PIPING, EMBEDMENTS, AND OPENINGS NOT SHOWN.

TEMPORARY SHORING AND BRACING MAY BE NECESSARY IN ORDER TO PERFORM THE NECESSARY STRUCTURAL MODIFICATIONS TO THE EXISTING STRUCTURE SHOWN ON THE STRUCTURAL AND ARCHITECTURAL PLANS AND DETAILS. THE CONTRACTOR MUST RETAIN A LICENSED STRUCTURAL ENGINEER WHO SHALL INVESTIGATE WHERE THIS TEMPORARY SHORING/BRACING IS REQUIRED, AND SHALL DESIGN THIS TEMPORARY SHORING/BRACING.

SEQUENCING CONSTRUCTION AND LATERAL STABILITY:

THE STRUCTURAL COMPONENTS BY THEMSELVES ARE A NON-SELF-SUPPORTING STRUCTURE. LATERAL FORCES DUE TO WIND, EARTHQUAKE, OR SOIL ARE CARRIED BY THE ROOF AND FLOOR DIAPHRAGMS TO THE LATERAL SYSTEM. CERTAIN ELEMENTS SHOWN ON OR LOCAL STABILITY OF OTHER ELEMENTS (SUCH AS BEAMS, COLUMNS, AND WALLS). IF, DUE TO SEQUENCING OF CONSTRUCTION, THESE STABILITY ELEMENTS ARE NOT IN PLACE, THE CONTRACTOR SHALL RETAIN A LICENSED STRUCTURAL ENGINEER WHO SHALL INVESTIGATE WHERE TEMPORARY SHORING/BRACING IS REQUIRED, AND SHALL DESIGN THIS TEMPORARY SHORING/BRACING. THE CONTRACTOR SHALL PROVIDE THIS SHORING/BRACING UNTIL THE REQUIRED STRUCTURAL ELEMENTS AND THEIR CONNECTIONS HAVE BEEN INSTALLED AND REACH THEIR FINAL DESIGN STRENGTHS.

MISCELLANEOUS:

REFER TO ARCHITECTURAL, MECHANICAL, ELECTRICAL, CIVIL, ELEVATOR, OR OTHER SPECIALTY ENGINEERING DRAWINGS FOR DIMENSIONS NOT SHOWN, INCLUDING BUT NOT LIMITED TO: SIZE AND LOCATION OF CURBS, EQUIPMENT HOUSEKEEPING PADS, WALL AND FLOOR OPENINGS, BLOCKOUTS, FLOOR DEPRESSIONS, SUMPS, DRAINS, ANCHOR BOLTS, EMBEDDED ITEMS, ARCHITECTURAL TREATMENT, ETC. CONTRACTOR SHALL VERIFY DIMENSIONS AND RESOLVE DISCREPANCIES OR CONFLICTS PRIOR TO CONSTRUCTION. WHERE SECTIONS ARE INDICATED ON THE PLAN BY A NUMBER AND A DRAWING NUMBER THUS, 1/S5.01, THE INDICATED SECTION (1) IS SHOWN ON STRUCTURAL DRAWING S5.01.

FLOOR FLATNESS/LEVELNESS SHALL MEET ARCHITECTURAL SPECIFICATIONS (1/4" IN 10 FOOT MINIMUM LEVELNESS UNLESS TIGHTER REQUIREMENT IN SPECIFICATIONS) IN HEIGHT FOR ALL STRUCTURAL SYSTEMS. CONTRACTOR SHALL INCLUDE COST FOR LEVELING ALL FLOORS. FOR ESTIMATING PURPOSES ONLY, ASSUME 1/2" THICK LEVELING AGENT OVER 15% OF FLOOR AREA.

SPECIAL INSPECTION:

SPECIAL INSPECTION:

PER IBC CHAPTER 17, SPECIAL INSPECTION IS REQUIRED FOR THE FOLLOWING ITEMS:

CONCRETE: VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERRENCED STANDARD (NOTE 1)	IBC REFERENCE
1. Inspection of reinforcing steel, and placement.	–	X	ACI 318: 3.5, 7.1-7.7	1913.4
2. Verifying use of required design mix.	–	X	ACI 318: CH. 4, 5.2-5.4	1904.2.2, 1913.2, 1913.3
3. At the time fresh concrete is sampled to fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	X	–	ASTM C 172 ASTM C 31 ACI 318: 5.6, 5.8	1913.10
4. Inspection of concrete placement for proper application techniques.	X	–	ACI 318: 5.9, 5.10	1913.6, 1913.7, 1913.8
5. Inspection for maintenance of specified curing temperature and techniques.	–	X	ACI 318: 5.11, 5.13	1913.9
6. Inspect formwork for shape, location and dimensions of the concrete member being formed.	–	X	ACI 318: 6.1.1	

NOTES:
1. WHERE APPLICABLE, SEE ALSO SECTION 1707.1, SPECIAL INSPECTION FOR SEISMIC RESISTANCE.
2. TABLES TAKEN DIRECTLY FROM IBC FOR REFERENCE.

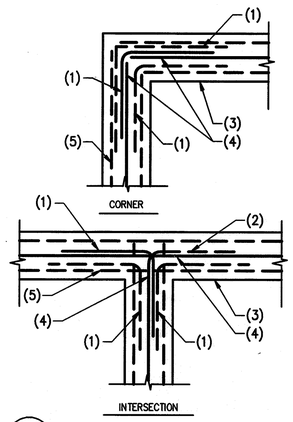
EPOXY REBAR: 1. During placement of all and epoxy rebar, for visual verification of hole diameter and depth and placement of rebar and/or epoxy.	–	X		
SOILS: 1. Excavation, recompaction and proper bearing surface for foundations not the responsibility of the structural engineer. Special inspection certificate to be completed by geotechnical engineer.	–	–		

DUTIES AND RESPONSIBILITIES OF THE SPECIAL INSPECTOR:

A) THE SPECIAL INSPECTOR SHALL OBSERVE THE WORK ASSIGNED TO BE CERTAIN IT CONFORMS WITH THE APPROVED DESIGN DRAWINGS AND SPECIFICATION.

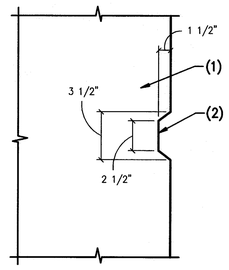
B) THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE ENGINEER.

C) UPON COMPLETION OF THE ASSIGNED WORK THE ENGINEER OR ARCHITECT SHALL COMPLETE AND SIGN THE APPROPRIATE FORMS CERTIFYING THAT TO THE BEST OF HIS KNOWLEDGE THE WORK IS IN CONFORMANCE WITH THE APPROVED PLANS AND SPECIFICATIONS AND THE APPLICABLE WORKMANSHIP PROVISIONS OF THE CODE.



NOTES:
1. CORNER BARS SAME SIZE AND SPACING AS HORIZONTAL REINFORCING. LAP PER G.S.N. (24" MINIMUM).
2. ALTERNATE BEND.
3. CONCRETE STEM WALL OR FOOTING.
4. REINFORCING PER PLANS AND /OR G.S.N.
5. BARS EACH FACE WHERE OCCURS.

04 PLAN – CORNER REINFORCING IN CONCRETE WALL, AND/OR FOOTING
NO SCALE



NOTES:
1. CONCRETE.
2. KEYED JOINT – REMOVE FORM MATERIAL PRIOR TO PLACING ADJACENT CONCRETE.

NOTE:
ALL DIMENSIONS ARE ± 1/2".

05 TYPICAL KEY IN CONCRETE
NO SCALE

*SLAB REINFORCING DESIGNATION **

TYPICAL CONDITION UNLESS NOTED OTHERWISE.

WHERE TWO LAYERS OF REINFORCING OCCUR IN SAME POSITION THE BOTTOMMOST OR TOPMOST SHALL BE FORMED WITH THE REINFORCING THAT HAS THE LARGEST AREA. REINFORCING SUPPORTING CANTILEVER CONDITION IS ALWAYS TOPMOST LAYER. BM = BOTTOMMOST, TM = TOPMOST, B = BOTTOM, T = TOP.

LENGTH (FEET), IF LENGTH IS NOT DESIGNATED REINF. IS CONT. AND LAPPED OVER LINE OF SUPPORT. LENGTH DOES NOT INCLUDE STANDARD HOOK AT END OF BAR.

12 #5 X 16 AT 6 BM (TYP)

TOTAL NUMBER OF BARS. IF NUMBER IS NOT DESIGNATED, REINFORCING IS CONT IN DIRECTION SHOWN.

SPACING (INCHES)

REINFORCING BAR SIZE.

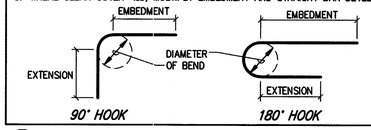
CONC. PSI	CLASS B TENSION SPLICE LENGTHS: f'c = 2,500 PSI / f'c = 3,000 PSI		f'c = 4,000 PSI		f'c = 5,000 PSI AND HIGHER		COMP. BARS: f'c = ALL	
BAR LOCATION	REGULAR CLASS	TOP CLASS	REGULAR CLASS	TOP CLASS	REGULAR CLASS	TOP CLASS	STD LAP	ENCLOSED W/ SPIRAL TIES
SIZE								
#3	24"	31"	19"	24"	17"	22"	12"	12"
#4	32"	41"	25"	33"	23"	29"	15"	12"
#5	39"	51"	31"	41"	28"	36"	19"	14"
#6	47"	61"	37"	49"	34"	43"	23"	17"
#7	69"	89"	54"	71"	49"	63"	26"	20"
#8	78"	102"	62"	81"	56"	72"	30"	23"
#9	88"	115"	70"	91"	63"	81"	34"	25"
#10	100"	129"	79"	102"	70"	92"	38"	29"
#11	110"	143"	87"	113"	78"	102"	42"	32"

NOTES:
1. TOP BARS ARE ANY HORIZONTAL BARS PLACED SO THAT MORE THAN 12" OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE REINFORCEMENT.
2. UNLESS NOTED OTHERWISE, LAP SPLICES IN CONCRETE BEAMS, SLABS AND WALLS SHALL BE CLASS "B" TENSION SPLICES. CONCRETE COLUMNS SHALL USE COMPRESSION LAP SPLICES.
3. CONTACT STRUCTURAL ENGINEER IF CENTER TO CENTER SPACING OF REINFORCING IS LESS THAN OR EQUAL TO 3 BAR DIAMETERS ≤3db OR 2db CLEAR SPACING BETWEEN BARS.

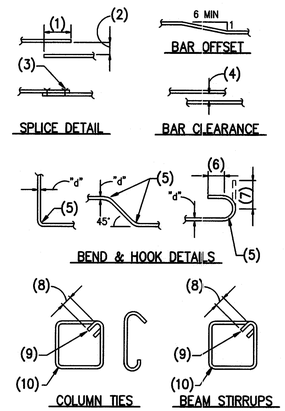
01 LAP SCHEDULE FOR REINFORCING STEEL
NO SCALE

BAR SIZE	EMBEDMENT: 3000 PSI CONCRETE	EMBEDMENT: 5000 PSI CONCRETE & HIGHER	EXTENSION: 90° HOOK	EXTENSION: 180° HOOK	MINIMUM DIAMETER OF BEND (INCHES)	STRAIGHT BAR DEVELOPMENT: 5000 PSI & HIGHER	STRAIGHT BAR DEVELOPMENT: 3000 PSI
#3	6	6	4.5	2.5	3.00	13	16
#4	8	6	6.0	2.5	4.00	17	22
#5	10	7	7.5	2.5	5.00	21	27
#6	12	9	9.0	3.0	6.00	26	33
#7	13	10	10.5	3.5	7.00	37	48
#8	15	12	12.0	4.0	8.00	43	55
#9	17	13	13.5	4.5	11.28	48	62
#10	19	15	15.2	5.1	12.70	54	70
#11	22	17	16.9	5.6	14.10	60	77

NOTES:
1. EMBEDMENT LENGTH IS BASED ON 2 1/2" MINIMUM SIDE COVER AND 2" MINIMUM END COVER.
2. CONTACT STRUCTURAL ENGINEER IF CENTER TO CENTER SPACING OF REINFORCING IS LESS THAN OR EQUAL TO 3 BAR DIAMETERS <3db OR 2db CLEAR SPACING BETWEEN BARS.
3. WHERE CLEAR COVER <db, MULTIPLY EMBEDMENT AND STRAIGHT BAR DEVELOPMENT BY 1.5.



02 HOOKED DOWEL DEVELOPMENT LENGTH IN TENSION (INCHES)
NO SCALE



NOTES:
1. LAP – SEE G.S.N.
2. MAXIMUM 1/5 LAP BUT NOT MORE THAN 6".
3. WIRE TIES.
4. 1d (1" MINIMUM).
5. RADIUS=3d FOR BARS NOT OVER #8; 4d FOR #9, #10 AND #11 BARS; 5d FOR #14 AND #18 BARS. 5d FOR ALL GRADE 40 BARS WITH 180 DEGREE HOOK.
6. 4d (4" MINIMUM).
7. 12d (90 DEGREE HOOK).
8. 6d (4" MINIMUM).
9. 135 DEGREE BEND.
10. BEND AROUND 1 1/2" PIN FOR #3 BARS. BEND AROUND 2" PIN FOR #4 BARS. BEND AROUND 2 1/2" PIN FOR #5 BARS.

03 TYPICAL CONCRETE REINFORCING BAR DETAILS
NO SCALE

CALL TWO WORKING DAYS BEFORE YOU DIG
263-1100
1-800-STAKE-IT
(OUTSIDE MARICOPA COUNTY)

PK ASSOCIATES, LLC
7434 E. McDonald Drive
Scottsdale, Arizona 85250
Phone: (480) 922-3334
Fax: (480) 922-3739
Email: cadd@pkastructural.com
Website: www.pkastructural.com

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Phoenix, AZ 85021
(602) 335-8500
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DMB

ONE SCOTTSDALE PU III
EAST DRAINAGE STORM DRAIN IMPROVEMENTS
SCOTTSDALE, ARIZONA

PLAN CHECK• XXXX-XX-X Q.S.• 39-45
S.A.• 378-SA-2011 PREPLAT• 24-PP-2011 52-DR-2011

EXPIRES: 6-30-2012

DRAWN	ELH
CHECKED	CC/JA
DATE	FEBRUARY 10, 2012
SCALE	AS NOTED
JOB NO.	11383
SHEET	6 OF 7

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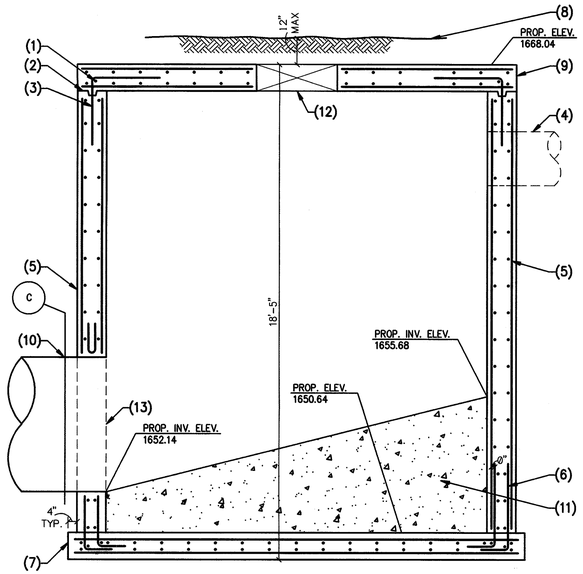
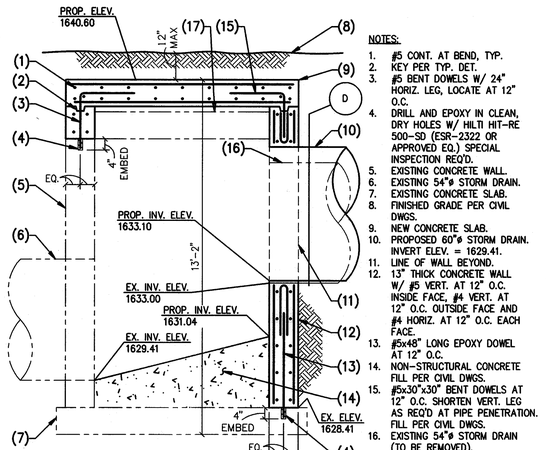


NOTES:
1. #5 CONT. AT BEND, TYP.
2. KEY PER TYP. DET.
3. #5x30"x20" BENT DOWELS AT 12" O.C.
4. PROPOSED STORM DRAIN BEYOND.
5. 13" THICK CONCRETE WALL W/ #6 VERT. AT 6" O.C. INSIDE FACE, #4 VERT. AT 12" O.C. OUTSIDE FACE AND #4 HORIZ. AT 12" O.C. EACH FACE.
6. DOWELS TO MATCH AND LAP VERT. WALL REINF.
7. 12" THICK CONCRETE SLAB W/ #5 AT 10" O.C. EACH WAY, TOP AND BOTTOM.
8. FINISHED GRADE PER CIVIL DWGS.
9. NEW CONCRETE SLAB.
10. PROPOSED 60"ø STORM DRAIN.
11. NON-STRUCTURAL CONCRETE FILL PER CIVIL DWGS.
12. MANHOLE PER CIVIL DWGS.
13. LINE OF WALL BEYOND.

B NORTH JUNCTION STRUCTURE SECTION

NO SCALE

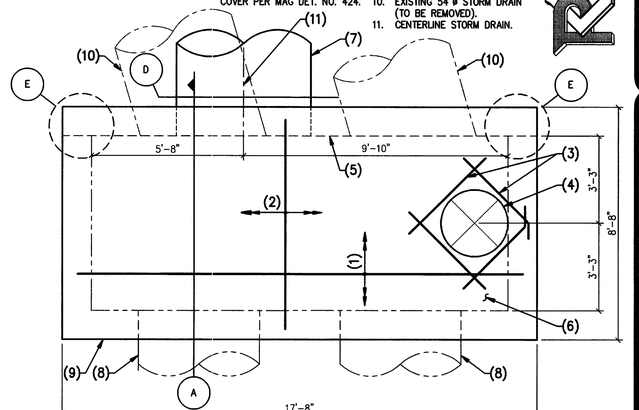


NOTES:
1. #5 CONT. AT BEND, TYP.
2. KEY PER TYP. DET.
3. #5 BENT DOWELS W/ 24" HORIZ. LEG, LOCATE AT 12" O.C.
4. DRILL AND EPOXY IN CLEAN, DRY HOLES W/ HILTI HIT-RE 500-SD (ESR-2322 OR APPROVED EQ.) SPECIAL INSPECTION REQ'D.
5. EXISTING CONCRETE WALL.
6. EXISTING 54"ø STORM DRAIN.
7. EXISTING CONCRETE SLAB.
8. FINISHED GRADE PER CIVIL DWGS.
9. NEW CONCRETE SLAB.
10. PROPOSED 60"ø STORM DRAIN. INVERT ELEV. = 1629.41.
11. LINE OF WALL BEYOND.
12. 13" THICK CONCRETE WALL W/ #5 VERT. AT 12" O.C. INSIDE FACE, #4 VERT. AT 12" O.C. OUTSIDE FACE AND #4 HORIZ. AT 12" O.C. EACH FACE.
13. #5x48" LONG EPOXY DOWEL AT 12" O.C.
14. NON-STRUCTURAL CONCRETE FILL PER CIVIL DWGS.
15. #5x30"x30" BENT DOWELS AT 12" O.C. SHORTEN VERT. LEG AS REQ'D AT PIPE PENETRATION. FILL PER CIVIL DWGS.
16. EXISTING 54"ø STORM DRAIN (TO BE REMOVED).
17. EXISTING CONCRETE SLAB (TO BE REMOVED).

A SOUTH JUNCTION STRUCTURE SECTION

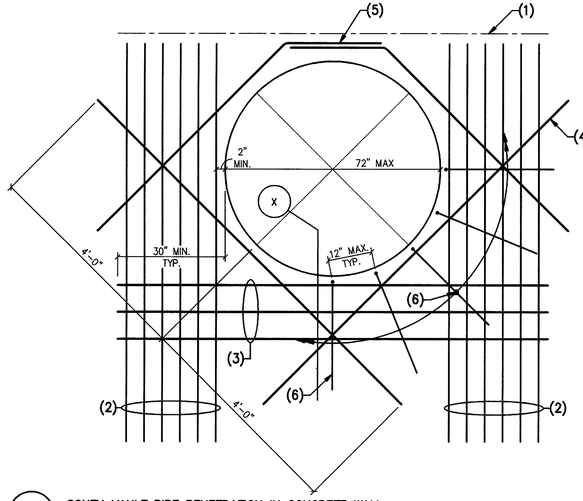
NO SCALE

NOTES:
1. #4 AT 12" O.C. TOP AND BOTTOM.
2. #5 AT 12" O.C. BOTTOM MOST AND #4 AT 12" O.C. TOP MOST.
3. #4x4'-0" LONG CORNER BAR. PROVIDE HOOK AT SLAB EDGE.
4. 30"ø MANHOLE FRAME AND COVER PER MAG DET. NO. 424.
5. NEW CONCRETE WALL PER SECTION A.
6. 12" THICK CONCRETE SLAB.
7. PROPOSED 60"ø STORM DRAIN. INVERT ELEV. = 1652.14.
8. EXISTING 54"ø STORM DRAIN.
9. EXISTING CONCRETE WALL.
10. EXISTING 54"ø STORM DRAIN (TO BE REMOVED).
11. CENTERLINE STORM DRAIN.

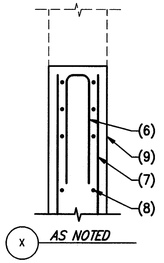


SOUTH JUNCTION STRUCTURE FRAMING PLAN

NO SCALE



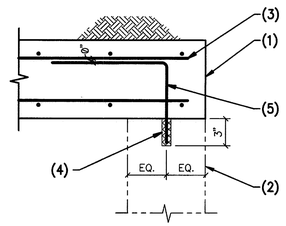
NOTES:
1. LINE OF VAULT LID.
2. 6 #6 AT 4" O.C. INSIDE FACE (FULL HEIGHT).
3. 3 #6 AT 6" O.C.
4. #4x8'-0" LONG EACH FACE.
5. WHERE 4'-0" CANNOT BE OBTAINED, EXTEND BAR AS FAR AS POSSIBLE AND HOOK OR BEND.
6. #4U x2'-0" LONG AT 12" O.C. RADIALLY AT PENETRATION.
7. WALL VERT. REINF.
8. WALL HORIZ. REINF.
9. CONCRETE WALL.
10. PENETRATION OPENING.



X AS NOTED

D SOUTH VAULT PIPE PENETRATION IN CONCRETE WALL

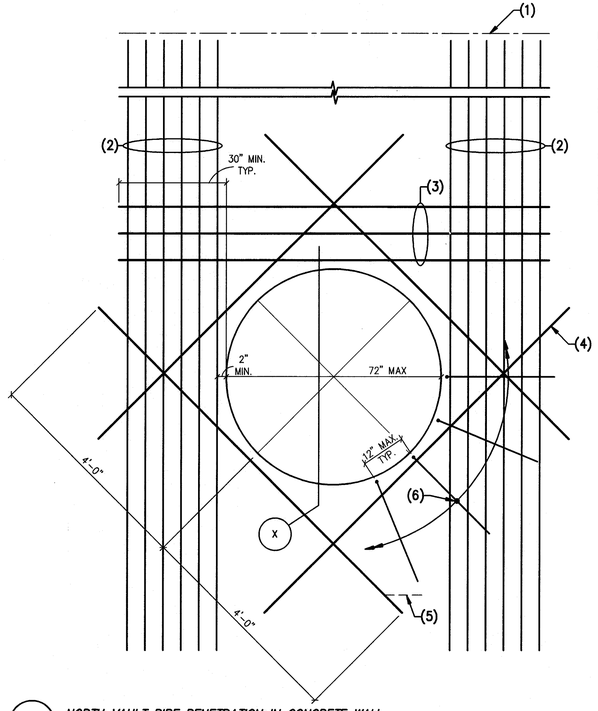
NO SCALE



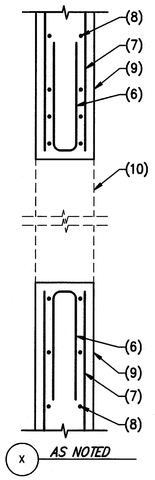
NOTES:
1. NEW WALL.
2. EXISTING WALL.
3. TYP. HORIZ. REINF.
4. DRILL AND EPOXY IN CLEAN, DRY HOLES W/ HILTI HIT-RE 500-SD (ESR-2322 OR APPROVED EQ.) SPECIAL INSPECTION REQ'D.
5. #4 W/ 24" HORIZ. LEG. LOCATE AT 12" O.C.

E PLAN VIEW - SOUTH JUNCTION STRUCTURE CONCRETE WALL AT EXISTING WALL

NO SCALE



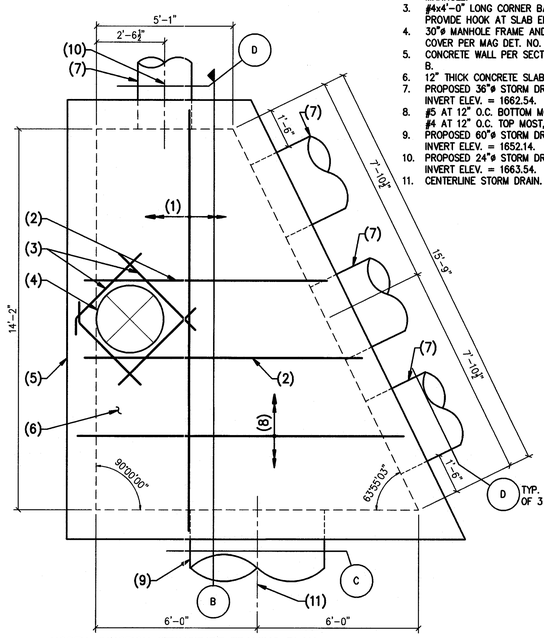
NOTES:
1. LINE OF VAULT LID.
2. 6 #6 AT 4" O.C. INSIDE FACE (FULL HEIGHT).
3. 3 #6 AT 6" O.C.
4. #4x8'-0" LONG EACH FACE.
5. WHERE 4'-0" CANNOT BE OBTAINED, EXTEND BAR AS FAR AS POSSIBLE AND HOOK OR BEND.
6. #4U x2'-0" LONG AT 12" O.C. RADIALLY AT PENETRATION.
7. WALL VERT. REINF.
8. WALL HORIZ. REINF.
9. CONCRETE WALL.
10. PENETRATION OPENING.



X AS NOTED

C NORTH VAULT PIPE PENETRATION IN CONCRETE WALL

NO SCALE



NOTES:
1. #4 AT 12" O.C. TOP AND BOTTOM.
2. ADD'L 1 #5 BOTTOM FOR NET 6" O.C. SPACING ADJACENT TO MANHOLE.
3. #4x4'-0" LONG CORNER BAR. PROVIDE HOOK AT SLAB EDGE.
4. 30"ø MANHOLE FRAME AND COVER PER MAG DET. NO. 424.
5. CONCRETE WALL PER SECTION B.
6. 12" THICK CONCRETE SLAB.
7. PROPOSED 36"ø STORM DRAIN. INVERT ELEV. = 1662.54.
8. #5 AT 12" O.C. BOTTOM MOST, #4 AT 12" O.C. TOP MOST.
9. PROPOSED 60"ø STORM DRAIN. INVERT ELEV. = 1652.14.
10. PROPOSED 24"ø STORM DRAIN. INVERT ELEV. = 1663.54.
11. CENTERLINE STORM DRAIN.

NORTH JUNCTION STRUCTURE FRAMING PLAN

NO SCALE

SEE GSN FOR CONCRETE CLEAR COVER FOR REINFORCEMENT.

CALL TWO WORKING DAYS BEFORE YOU DIG
263-1100
1-800-STAKE-IT
(OUTSIDE MARICOPA COUNTY)

PK ASSOCIATES, LLC
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Website: www.pkcastructural.com

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Site Photos

SITE PHOTO LOG

Key Map

Photo 1

Photo 2

Photo 3

Photo 4

Photo 5

Photo 6

Photo 7

Photo 8

Photo 9

Photo 10

Photo 11

Photo 12

Photo 13

Photo 14

Photo 15

Photo 16

Photo 17

Photo 18

Photo 19

Photo 20

Photo 21

Photo 22

Photo 23

Photo 24

Photo 25

Photo 26

Photo 27

Photo 28

Photo 29

Normal Depth Calculations

Hydraulic Analysis Report

Project Data

Project Title:

Designer:

Project Date: Friday, December 17, 2021

Project Units: U.S. Customary Units

Notes:

Channel Analysis: 5-ft Diameter

Notes:

Input Parameters

Channel Type: Circular

Pipe Diameter: 5.0000 ft

Longitudinal Slope: 0.0015 ft/ft

Manning's n: 0.0115

Flow: 33.0000 cfs

Result Parameters

Depth: 1.8418 ft

Area of Flow: 6.5647 ft^2

Wetted Perimeter: 6.5218 ft

Hydraulic Radius: 1.0066 ft

Average Velocity: 5.0269 ft/s

Top Width: 4.8236 ft

Froude Number: 0.7594

Critical Depth: 1.5967 ft

Critical Velocity: 6.1098 ft/s

Critical Slope: 0.0026 ft/ft

Critical Top Width: 4.66 ft

Calculated Max Shear Stress: 0.1724 lb/ft^2

Calculated Avg Shear Stress: 0.0942 lb/ft^2