

CITY OF ALBUQUERQUE

Planning Department
David Campbell, Director



Mayor Timothy M. Keller

October 4, 2018

J. Graeme Means, P.E.
High Mesa Consulting Group
6010 B Midway Park Blvd NE
Albuquerque, NM, 87109

**RE: NW K Thru 8 Prototype School
9601 Tierra Pintada Blvd NW
Permanent C.O. - Accepted
Engineer's Certification Dated 10/01/18
Engineer's Stamp Date: 11/17/17
Hydrology File: J08D003A**

PO Box 1293

Dear Mr. Means:

Albuquerque

Based on the Certification received 10/01/18 and site visit on 10/03/18, this certification is approved in support of Permanent Release of Occupancy by Hydrology.

If you have any questions, please contact me at 924-3995 or rbrissette@cabq.gov.

NM 87103

Sincerely,

www.cabq.gov

Renée C. Brissette, P.E. CFM
Senior Engineer, Hydrology
Planning Department



City of Albuquerque

Planning Department
Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 6/2018)

Project Title: _____ **Building Permit #:** _____ **Hydrology File #:** _____

DRB#: _____ **EPC#:** _____ **Work Order#:** _____

Legal Description: _____

City Address: _____

Applicant: _____ **Contact:** _____

Address: _____

Phone#: _____ **Fax#:** _____ **E-mail:** _____

Other Contact: _____ **Contact:** _____

Address: _____

Phone#: _____ **Fax#:** _____ **E-mail:** _____

TYPE OF DEVELOPMENT: _____ PLAT (# of lots) _____ RESIDENCE _____ DRB SITE _____ ADMIN SITE

IS THIS A RESUBMITTAL? _____ Yes _____ No

DEPARTMENT _____ TRANSPORTATION _____ HYDROLOGY/DRAINAGE

Check all that Apply:

TYPE OF SUBMITTAL:

- _____ ENGINEER/ARCHITECT CERTIFICATION
- _____ PAD CERTIFICATION
- _____ CONCEPTUAL G & D PLAN
- _____ GRADING PLAN
- _____ DRAINAGE REPORT
- _____ DRAINAGE MASTER PLAN
- _____ FLOODPLAIN DEVELOPMENT PERMIT APPLIC
- _____ ELEVATION CERTIFICATE
- _____ CLOMR/LOMR
- _____ TRAFFIC CIRCULATION LAYOUT (TCL)
- _____ TRAFFIC IMPACT STUDY (TIS)
- _____ STREET LIGHT LAYOUT
- _____ OTHER (SPECIFY) _____
- _____ PRE-DESIGN MEETING?

TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

- _____ BUILDING PERMIT APPROVAL
- _____ CERTIFICATE OF OCCUPANCY
- _____ PRELIMINARY PLAT APPROVAL
- _____ SITE PLAN FOR SUB'D APPROVAL
- _____ SITE PLAN FOR BLDG. PERMIT APPROVAL
- _____ FINAL PLAT APPROVAL
- _____ SIA/ RELEASE OF FINANCIAL GUARANTEE
- _____ FOUNDATION PERMIT APPROVAL
- _____ GRADING PERMIT APPROVAL
- _____ SO-19 APPROVAL
- _____ PAVING PERMIT APPROVAL
- _____ GRADING/ PAD CERTIFICATION
- _____ WORK ORDER APPROVAL
- _____ CLOMR/LOMR
- _____ FLOODPLAIN DEVELOPMENT PERMIT
- _____ OTHER (SPECIFY) _____

DATE SUBMITTED: _____ **By:** _____

COA STAFF:

ELECTRONIC SUBMITTAL RECEIVED: _____

FEE PAID: _____

DRAINAGE PLAN

I. EXECUTIVE SUMMARY AND INTRODUCTION

THIS PROJECT IS THE FIRST PHASE OF DEVELOPMENT ON AN UNDEVELOPED PLATED TRACT LOCATED IN THE ALBUQUERQUE NORTHWEST MESA AREA. THIS GRADING AND DRAINAGE PLAN HAS BEEN PREPARED IN ACCORDANCE WITH ESTABLISHED MASTER DRAINAGE PLANS FOR THE AREA AND ALSO A MASTER DRAINAGE PLAN SPECIFIC TO THIS SITE THAT IS BEING SUBMITTED CONCURRENTLY. AS DESCRIBED BY THE MASTER DRAINAGE PLAN, THIS 1ST PHASE OF CONSTRUCTION IS A NEW ALBUQUERQUE PUBLIC SCHOOLS (APS) PRE-K TO 8TH GRADE SCHOOL THAT INCLUDES DRAINAGE INFRASTRUCTURE SIZED FOR FULL BUILDOUT OF SUBSEQUENT SCHOOL FACILITIES ON THE SAME TRACT WITH INTERMEDIATE IMPROVEMENTS THAT WILL ACCOMMODATE FUTURE PHASES. ALL PROPOSED INFRASTRUCTURE WILL BE PRIVATE AND MAINTAINED BY APS. THIS PLAN IS SUBMITTED FOR ROUGH GRADING AND BUILDING PERMIT APPROVALS. THERE IS NO NEW PUBLIC INFRASTRUCTURE PROPOSED BY THIS PROJECT.

II. PROJECT DESCRIPTION

AS SHOWN BY ZONE ALIAS PLATS #8-7/8 & 7-7/8 LOCATED HEREON, THE SITE IS LOCATED IN THE CITY OF ALBUQUERQUE NORTHWEST MESA AREA AT THE NORTHWEST CORNER OF THE INTERSECTION OF TERRA PRATA BLVD NW AND ARROYO VISTA BLVD NW. THE SITE IS CURRENTLY UNDEVELOPED. THE CURRENT LEGAL DESCRIPTION IS TRACT N-1, WATERSHED SUBDIVISION, ALBUQUERQUE, NEW MEXICO. AS SHOWN BY PANEL 307 OF 825 THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAPS PUBLISHED BY FEMA FOR BERNALILLO COUNTY, NEW MEXICO, UPDATED TO REFLECT A LOW ASSOCIATED WITH THE AFOREMENTIONED OVERSEAN CHANNEL EFFECTIVE JANUARY 02, 2015, THE SITE IS INTERSECTED BY A ZONE AE FLOOD HAZARD CONTAINED WITHIN THE LADERA DAM 9 DIVERSION AMAFCA CHANNEL. THIS DIVERSION IS LOCATED UPSTREAM OF THE PROPOSED CONSTRUCTION.

III. BACKGROUND DOCUMENTS

THE SITE WAS PLANNED AND PLATTED BY WESTERN ALBUQUERQUE LAND HOLDING LLC (WAHL) FOR SALE TO APS FOR THE PURPOSE OF BUILDING SCHOOL FACILITIES FOR THE COMMUNITY. WAHL CONSTRUCTED THE SURROUNDING PUBLIC INFRASTRUCTURE AS A CONDITION OF PLATTING. NO NEW PLATTING OR PUBLIC DRAINAGE INFRASTRUCTURE IS PROPOSED BY APS. THE DEVELOPMENT OF THE SITE WILL FOLLOW DRAINAGE REPORTS THAT WERE PREPARED BY SHI FOR WAHL TO SUPPORT THE SUBSEQUENT SITE DEVELOPMENT BY APS. THE FOLLOWING DOCUMENTS WERE USED IN THE PREPARATION OF THIS SUBMITTAL:

- BOUNDARY, TOPOGRAPHIC AND UTILITY SURVEY PREPARED BY HIGH MESA CONSULTING GROUP, NMPS 11184, DATED 01/08/16, THIS SURVEY DOCUMENT THE EXISTING CONDITIONS FOR THE SITE.
- MASTER DRAINAGE PLAN FOR APS NORTHWEST EDUCATION PREPARED BY HIGH MESA CONSULTING GROUP, NMPS 13676, DATED 08/25/2016. THIS MASTER DRAINAGE PLAN FOLLOWED AND REFINED THE DRAINAGE REQUIREMENTS ESTABLISHED BY PREVIOUS APPROVED PLANS FOR THE OVERALL TRACT, INCLUDING ALLOWABLE DISCHARGES, OFFSITE FLOWS, AND LAND TREATMENTS FOR. DETAILED HYDROLOGIC AND HYDRAULIC CALCULATIONS AND ANALYSIS SUPPORT THIS SPECIFIC DEVELOPMENT AS WELL AS A LARGER OVERALL DEVELOPMENT OF THIS TRACT BY APS WITH FUTURE PHASES.

THIS MASTER DRAINAGE PLAN REFERENCED THE FOLLOWING DOCUMENTS:

- DRAINAGE ANALYSIS REPORT FOR LADERA DAW 5 AND DAM 9 ARROYOS: APS PROJECTS, PREPARED BY BOHANNAN HUSTON, NMPS CRAIG W. HOOVER DATED APRIL 6TH, 2012. THIS DRAINAGE REPORT WAS PREPARED TO PROVIDE THE FOUNDATION FOR THE DESIGN FOR DRAINAGE FACILITIES REQUIRED IN CONJUNCTION WITH DEVELOPMENT OF THE APS STADIUM AND SCHOOL SITES THAT WERE PREVIOUSLY IDENTIFIED BY THE 2011 WEST 1-40 DMP UPDATE. THIS DRAINAGE REPORT BUILT UPON AND MODIFIED THE PROPOSED BASIN DISCHARGE LIMITATIONS FOUND IN THE APS PROJECT DRAINAGE IMPROVEMENTS SECTION OF THE 2011 WEST 1-40 DMP UPDATE.
- DRAINAGE ANALYSIS REPORT FOR ARROYO VISTA BLVD & TERRA PRATA BLVD, PREPARED BY BOHANNAN HUSTON, NMPS 13685 & 20010, DATED APRIL 6TH, 2012. THE DRAINAGE REPORT SUPPORTED THE DESIGN AND CONSTRUCTION OF ARROYO VISTA AND TERRA PRATA ALONG WITH THE ASSOCIATED STORM DRAINAGE INFRASTRUCTURE THAT WAS CONSTRUCTED WITH THAT PROJECT. THIS REPORT ESTABLISHED ALLOWABLE DISCHARGES FROM THE APS SCHOOL SITE TO THE ADJACENT RIGHTS OF WAY AND DOWNSTREAM PUBLIC DRAINAGE FACILITIES.
- DRAINAGE MANAGEMENT PLAN FOR PULTE O MIREHAVEN PHASE 20R THE MIREHAVEN MASTER PLANNED COMMUNITY (TRACT N-2-O OF THE WATERSHED SUBDIVISION), PREPARED BY BOHANNAN HUSTON, NMPS 16244, DATED JANUARY 15, 2016. THE DRAINAGE MANAGEMENT PLAN WAS PREPARED TO PROVIDE THE OVERALL DRAINAGE MASTER PLAN FOR ADJACENT TRACT N-2-O AND INCLUDED IDENTIFIED REQUIREMENTS FOR DRAINAGE TO PROPOSED MIREHAVEN PARKWAY.

IV. EXISTING AND RECORD MASTER PLAN CONDITIONS

PLEASE REFERENCE TO THE APS NORTHWEST EDUCATION CORRIDOR MASTER DRAINAGE PLAN (REFERENCE 2) FOR A SUMMARY OF EXISTING UNDEVELOPED AND MASTER PLANNED CONDITIONS ESTABLISHED BY PREVIOUS PLANS (REFERENCES 3-5).

V. PROPOSED PHASE 1 CONDITIONS (SHEET CG-101)

THE FIRST PHASE OF CONSTRUCTION IS THE PRE-K THROUGH 8 SCHOOL AT THE EASTERN END OF THE SITE WHICH WILL ALSO INCLUDE DRAINAGE INFRASTRUCTURE TO ACCOMMODATE FUTURE UPSTREAM DEVELOPMENT AND THE INTERMEDIATE CONDITION. THE CITY OF ALBUQUERQUE FIRST FLOOD REQUIREMENT FOR THE PHASE 1 CONSTRUCTION WILL BE MET BY PONDING WITH A PROPOSED DETENTION/ WQV. WATER QUALITY POND LOCATED AT THE EAST END OF THE SITE. THE POND IS DESIGNED TO RETAIN 65,550 OF WHICH IS GREATER THAN THE REQUIRED FIRST FLOOD REQUIREMENT VOLUME OF 15,800 CFS FOR THIS PROJECT AND ALSO GREATER THAN THE 2-TWO YEAR POND TO MEET LEED REQUIREMENT OF 55.61 OF 49,820 CF. DEPRESSIONED LANDSCAPING WILL ALSO BE USED WHERE POSSIBLE TO CAPTURE RUNOFF THROUGHOUT THE SITE AS A BEST PRACTICE.

BASIN 1.9-10 - THIS SUB-BASIN WILL BE DIVIDED INTO 4 SUB-BASINS AS SHOWN ON SHEET CG-101. A PORTION OF THIS SUB-BASIN WILL BE DEVELOPED WITH THE NEW PRE-K TO 8 SCHOOL DEVELOPMENT WILL INCLUDE A NEW SCHOOL BUILDING, LANDSCAPING, PAVED ROADS AND OTHER SITE IMPROVEMENTS. THE OFFSITE PORTION OF THIS SUB-BASIN WILL REMAIN UNDEVELOPED BY PHASE 1 CONSTRUCTION AND WILL BE ACCEPTED, COLLECTED, AND RELEASED INTO THE NEW PRIVATE STORM DRAIN SYSTEM. THE NEW STORM DRAIN SYSTEM IS DESIGNED TO HANDLE THE FUTURE CONDITIONS FOR THIS SITE AND WILL DRAIN TO A NEW DETENTION POND LOCATED AT THE EAST END OF THE SITE IN BASIN 1.9-28.

SUB-BASIN 1.9-11 -OFFSITE- THIS BASIN CONSISTS OF 29.6 ACRES OF PETROLYPH NATIONAL PARK LOCATED TO THE NORTH OF THE SITE. THE BASIN WILL CONTINUE TO DRAIN INTO THE APS SITE, SUB-BASIN 1.9-18-1, BY A NATURAL ARROYO WITH AN UNDEVELOPED PEAK 100-YEAR DISCHARGE OF 57.7 CFS.

SUB-BASIN 1.9-18-1 - THIS SUB-BASIN WILL REMAIN UNDEVELOPED AND WILL CONTAIN A NEW SEDIMENT/COLLECTION POND SIZED TO COLLECT AND CONVEY OFFSITE FLOWS FROM ITSELF AND SUB-BASIN 1.9-18-OFFSITE. THE POND OUTLET (AP-1) WILL BE SET 2 FEET ABOVE THE POND BOTTOM TO PREVENT SEDIMENT FROM ENTERING THE NEW STORM DRAIN AND TO GIVE APS TIME TO PERFORM POND MAINTENANCE AS NEEDED PRIOR TO THE FUTURE DEVELOPMENT HEREON. THE STORAGE CAPACITY BELOW THE OUTLET IS SIZED TO RETAIN IN HEREON. THE POND OUTLET WILL BE SET 2 FEET ABOVE THE POND BOTTOM TO PREVENT SEDIMENT DELIVERY BASED UPON THE RATE OF 0.71 AC-FT PER SQUARE MILE PER YEAR AS ESTABLISHED BY REFERENCE 3. THIS STRATEGY WILL BE USED THROUGHOUT THE SITE.

SUB-BASIN 1.9-28 - THIS SUB-BASIN WILL CONTAIN A NEW BASE COURSE PARKING LOT AND ROADWAY FOR NATIONAL PARK ACCESS THAT DRAINS FROM NORTHWEST TO SOUTHEAST TO A NEW SEDIMENT/COLLECTION POND SIZED TO COLLECT AND CONVEY DEVELOPED FLOWS AND CONVEY THEM INTO THE NEW PRIVATE ON-SITE DRAINAGE SYSTEM AT AP-2. THE POND OUTLET WILL BE SET 2 FEET ABOVE THE POND BOTTOM TO PREVENT SEDIMENT FROM ENTERING THE NEW STORM DRAIN AND TO GIVE APS TIME TO PERFORM POND MAINTENANCE AS NEEDED IN THE FUTURE.

SUB-BASIN 1.9-3 - THIS SUB-BASIN WILL CONTAIN A PORTION OF THE NEW SCHOOL BUILDING, BUS AND FIRE LANE, CONCRETE SIDEWALKS, AND LANDSCAPING. THE RUNOFF FROM THIS AREA WILL BE COLLECTED BY ROOF DRAINS AND STORM INLETS INTO THE NEW PRIVATE STORM DRAINAGE SYSTEM. THE NEW SYSTEM WILL CONVEY THE DEVELOPED RUNOFF FROM THIS SUB-BASIN AND THE UPSTREAM BASINS INTO THE NEW WATER QUALITY / DETENTION POND LOCATED IN BASIN 1.9-28.

BASIN 1.9-24 - THIS SUB-BASIN WILL BE DIVIDED INTO 6 SUB-BASINS AS SHOWN ON SHEET MP-103. A PORTION OF THIS BASIN WILL BE DEVELOPED WITH THE NEW PRE-K TO 8 SCHOOL DEVELOPMENT WILL INCLUDE A NEW SCHOOL BUILDING, LANDSCAPING, PAVED ROADS, OTHER SITE IMPROVEMENTS, AND PERMANENT AND TEMPORARY DRAINAGE IMPROVEMENTS. TEMPORARY SEDIMENT/COLLECTION PONDS WILL BE CONSTRUCTED AT THE WEST LIMITS OF CONSTRUCTION TO INTERCEPT EXISTING FLOWS FROM UPSTREAM UNDEVELOPED SUB-BASINS. THE POND OUTLETS WILL BE SET 2 FEET ABOVE THE POND BOTTOMS TO PREVENT SEDIMENT FROM ENTERING THE NEW STORM DRAIN AND TO GIVE APS TIME TO PERFORM POND MAINTENANCE AS NEEDED IN THE FUTURE. THE TEMPORARY PONDS WILL RELEASE INTO THE NEW DRAINAGE SYSTEM THAT WILL CONVEY FLOW WEST TO THE EXISTING S-1 STRUCTURE AND THE DETENTION POND LOCATED AT THE END OF THE SITE. THE PIPE OUTLETS INSTALLED AT EACH TEMPORARY POND WILL BE SIZED TO HANDLE FUTURE DEVELOPED CONDITIONS FLOW RATES.

SUB-BASIN 1.9-24-1 - THERE WILL BE NO MAJOR DEVELOPMENT IN THIS SUB-BASIN. THIS SUB-BASIN WILL CONTINUE TO FLOW FROM WEST TO EAST AND CONTINUE TO ACCEPT OFFSITE FLOWS FROM THE NORTH. A TEMPORARY POND WILL BE CONSTRUCTED AT THE EAST END OF THE SUB-BASIN TO COLLECT EXISTING FLOWS THAT WILL BE BLOCKED FROM FOLLOWING EXISTING DRAINAGE PATTERNS BY THE NEW BUS LANE AND TO GIVE APS TIME TO PERFORM POND MAINTENANCE AS NEEDED IN THE FUTURE. THE POND OUTLET WILL BE SET 2 FEET ABOVE THE POND BOTTOM TO PREVENT SEDIMENT FROM ENTERING THE NEW STORM DRAIN AND TO GIVE APS TIME TO PERFORM POND MAINTENANCE AS NEEDED IN THE FUTURE. THE POND OUTLET WILL BE A 30" STUB-OUT DESIGNED TO HANDLE FUTURE SUB-BASIN DEVELOPMENT.

SUB-BASIN 1.9-24-2 - THERE WILL BE NO MAJOR DEVELOPMENT IN THIS SUB-BASIN. THIS SUB-BASIN WILL CONTINUE TO FLOW FROM WEST TO EAST. A TEMPORARY POND WILL BE CONSTRUCTED AT THE EAST END OF THE SUB-BASIN TO COLLECT EXISTING FLOWS THAT WILL BE BLOCKED FROM FOLLOWING EXISTING DRAINAGE PATTERNS BY THE NEW BUS ROAD, AND RELEASE THEM INTO THE NEW PRIVATE DRAINAGE SYSTEM. THE POND OUTLET WILL BE SET 2 FEET ABOVE THE POND BOTTOM TO PREVENT SEDIMENT FROM ENTERING THE NEW STORM DRAIN AND TO GIVE APS TIME TO PERFORM POND MAINTENANCE AS NEEDED IN THE FUTURE. THE POND OUTLET WILL BE A 30" STUB-OUT DESIGNED TO HANDLE FUTURE SUB-BASIN DEVELOPMENT.

SUB-BASIN 1.9-24-3 - THERE WILL BE NO MAJOR DEVELOPMENT IN THIS SUB-BASIN. THIS SUB-BASIN WILL CONTINUE TO FLOW FROM WEST TO EAST. A SEDIMENT / COLLECTION POND WILL BE CONSTRUCTED AT THE EAST END OF THE SUB-BASIN TO COLLECT EXISTING FLOWS THAT WILL BE BLOCKED FROM FOLLOWING EXISTING DRAINAGE PATTERNS BY THE NEW BUS ROAD, AND RELEASE THEM INTO THE NEW PRIVATE DRAINAGE SYSTEM. THE POND OUTLET WILL BE SET 2 FEET ABOVE THE POND BOTTOM TO PREVENT SEDIMENT FROM ENTERING THE NEW STORM DRAIN AND TO GIVE APS TIME TO PERFORM POND MAINTENANCE AS NEEDED IN THE FUTURE. THE POND OUTLET WILL BE A 30" STUB-OUT DESIGNED TO HANDLE EXISTING AND FUTURE SUB-BASIN DEVELOPMENT OR MODIFICATIONS.

SUB-BASIN 1.9-24-4 - THERE WILL BE NO MAJOR DEVELOPMENT IN THIS SUB-BASIN. THIS SUB-BASIN WILL CONTINUE TO FLOW FROM WEST TO EAST. A SEDIMENT / COLLECTION POND WILL BE CONSTRUCTED AT THE EAST END OF THE SUB-BASIN TO COLLECT EXISTING FLOWS THAT WILL BE BLOCKED FROM FOLLOWING EXISTING DRAINAGE PATTERNS BY THE NEW BUS ROAD, AND RELEASE THEM INTO THE NEW PRIVATE DRAINAGE SYSTEM. THE POND OUTLET WILL BE SET 2 FEET ABOVE THE POND BOTTOM TO PREVENT SEDIMENT FROM ENTERING THE NEW STORM DRAIN AND TO GIVE APS TIME TO PERFORM POND MAINTENANCE AS NEEDED IN THE FUTURE. THE POND OUTLET WILL BE A 30" STUB-OUT DESIGNED TO HANDLE EXISTING AND FUTURE SUB-BASIN DEVELOPMENT OR MODIFICATIONS.

SUB-BASIN 1.9-24-5 - THERE IS NO PROPOSED MAJOR DEVELOPMENT FOR THIS BASIN. THIS SUB-BASIN WILL CONTINUE TO DRAIN FROM WEST TO EAST AND INTO THE EXISTING GRADED CHANNEL THAT RUNS ALONG TERRA PRATA BLVD NW. THE EXISTING CHANNEL WILL DISCHARGE INTO A NEW INLET STRUCTURE THAT WILL CONNECT TO THE NEW PRIVATE STORM DRAIN SYSTEM LOCATED IN 1.9-24-6 (AP-11). THIS BASIN WILL CONTINUE TO ACCEPT FLOWS FROM THE ADJACENT BASIN 1.7-1A WHICH ALSO CURRENTLY DRAINS TO STRUCTURE S-1. AS PART OF THIS PHASE 1 OF CONSTRUCTION, THERE WILL BE 24" STORM DRAIN STUB INSTALLED FOR FUTURE DEVELOPMENT OF THIS AREA.

SUB-BASIN 1.9-24-6 - THIS SUB-BASIN INCLUDES A SOUTH SECTION OF THE NEW SCHOOL BUILDING, A LARGE PORTION OF THE BUS ACCESS LOOP, STUDENT DROP-OFF, AND FIRE LAKES, NEW PAVED PARKING LOTS, AND LANDSCAPING. THE RUNOFF GENERATED BY THIS SUB-BASIN WILL BE COLLECTED BY NEW ROOF DRAINS AND STORM INLETS AND INTRODUCED INTO THE NEW STORM DRAIN SYSTEM AT AP-11. THE NEW SYSTEM WILL BE SIZED TO HANDLE THE FUTURE DEVELOPED CONDITION OF THE UPSTREAM BASINS, AS DESCRIBED ABOVE. BASIN 1.9-24 CURRENTLY DISCHARGES TO EXISTING DRAINAGE STRUCTURE S-1 WHICH HAS AN ALLOWABLE DISCHARGE OF 106 CFS WHICH IS MUCH LESS THAN THE DEVELOPED CONDITION AT THIS POINT. AS DESCRIBED BY THE BHM REPORTS, FLOW MUST BE DIVIDED AT THIS POINT. THE FLOW MUST BE DIVIDED TO THE NORTHWEST TO STRUCTURE S-2. IN ORDER TO MEET THIS REQUIREMENT A NEW STORM DRAIN MANHOLE WILL BE CONSTRUCTED TO SPLIT FLOWS BETWEEN THE STRUCTURE S-1 OUTFALL AND THE PROPOSED WATER QUALITY/DETENTION POND IN BASIN 1.9-28. TO MEET LEED WATER QUALITY/QUANTITY AND CQA FIRST FLUSH REQUIREMENTS, THE OUTLET PIPE TO THE NORTHWEST FROM THE SPLITTER MANHOLE TO THE POND WILL BE SET AT AN ELEVATION BELOW THAT OF THE SECONDARY OUTLET TO STRUCTURES S-1 TO INSURE THAT THE FIRST FLUSH AND LEED WATER QUALITY VOLUME WILL BE THE FIRST FLOOD TO ENTER THE POND AND THERE WILL ONLY BE A DISCHARGE OF UNTRATED RUNOFF TO STRUCTURE S-1 FOR LARGER EVENTS. IN THIS INTERIM PHASE 1 CONDITION, THE SPLITTER MANHOLE WILL SEND 53.0 CFS (HALF OF THE ALLOWABLE) TO STRUCTURE S-1 AND 94.6 CFS TO THE WATER QUALITY/DETENTION POND.

SUB-BASIN 1.9-28 - THIS SUB-BASIN WILL CONTAIN A NEW TRACK AND ATHLETIC FIELD AND A NEW DETENTION POND AND WILL CONTINUE TO DRAIN FROM WEST TO EAST. THE NEW DETENTION/WATER QUALITY POND IS DESIGNED TO RETAIN 65,550 OF WHICH IS GREATER THAN THE 49,820 OF GENERATED BY THE PROPOSED 2 YR STORM TO MEET LEED REQUIREMENT 55.61, AND ALSO EXCEEDS THE 18,800 OF CQA FIRST FLUSH REQUIREMENT FOR BOTH PHASE 1 AND THE 55.01 OF REQUIREMENT FOR FULL BUILDOUT. THE POND WILL RECEIVE FLOWS FROM BASINS 1.9-18, 1.9-24, 1.7-1A AND 1.9-12/190/20A. THE POND WILL HAVE A RAISED OUTLET WITH A PEAK DISCHARGE OF 101.9 CFS TO EXISTING STRUCTURE S-2 WHICH IS LESS THAN THE ALLOWABLE DISCHARGE RATE OF 215.2 CFS INDICATED IN THE ABOVE REFERENCED DRAINAGE REPORTS.

BASIN 1.9-12/190/20A - THIS BASIN WILL INCLUDE A NEW BASE COURSE ROADWAY AND PARKING LOT FOR NATIONAL PARK ACCESS. THE BASIN WILL CONTINUE TO DRAIN FROM WEST TO EAST AND BE COLLECTED BY A NEW INLET AND BE CONVEYED TO THE WATER QUALITY/DETENTION POND LOCATED IN BASIN 1.9-28. RUNOFF WILL NO LONGER FLOW OFF SITE AS REQUIRED BY THE BHM MIREHAVEN REPORT (REFERENCE 5) TO ARROYO VISTA BLVD.

BASIN 1.9-17A - THIS BASIN WILL HAVE A NEW BUS ROAD CONSTRUCTED CROSSING THROUGH IT BUT OTHERWISE REMAIN UNDEVELOPED BY PHASE 1 CONDITION. THIS BASIN WILL CONTINUE TO DRAIN SOUTH TO ARROYO VISTA BLVD.

BASIN 1.7-1A - THERE IS NO PROPOSED DEVELOPMENT WITHIN THIS BASIN IN PHASE 1 AND, AND IT WILL CONTINUE TO DRAIN FROM WEST TO EAST INTO AN UNLINED GRADED CHANNEL THAT CONTINUES NORTHWEST INTO BASIN 1.9-24-5 AND TO AP-11.

IN ADDITION TO THE PROPOSED PHASE 1 ON-SITE APS DEVELOPMENT, THIS PLAN RECOGNIZES THE PROPOSED DEVELOPMENT BY PULTE HOMES INCLUDING PROPOSED MIREHAVEN PARKWAY ALONG THE NORTHWEST SIDE OF THE SITE THAT INCLUDES A STORM DRAIN THAT WILL ALSO DISCHARGE INTO STRUCTURE S-2 WITH A PEAK DEVELOPED FLOW RATE OF 37.7 CFS (SEE REFERENCE 5). THE PROPOSED APS DISCHARGE TO STRUCTURE S-2 WILL ALLOW CONNECTION IN THE FUTURE BY PULTE AND TAKES THIS DISCHARGE INTO ACCOUNT WITH RESPECT TO THE ALLOWABLE DISCHARGE TO STRUCTURE S-2. A STUB WILL BE PROVIDED FOR THIS FUTURE CONNECTION.

VI. CALCULATIONS

THE CALCULATIONS SUMMARIZED HEREIN ANALYZE BOTH PHASE 1 AND FUTURE CONDITIONS FOR THE 100-YR, 6-HR STORM EVENT. THE PROGRAM AHYMO HAS BEEN USED TO QUANTIFY THE PEAK RATE OF DISCHARGE AND VOLUME OF RUNOFF GENERATED AND TO MODEL THE DETENTION POND ROUTING, AS SHOWN BY THE SUMMARY. THERE WILL BE AN INCREASE IN THE PEAK RATE AND VOLUME OF DISCHARGE FROM THE OVERALL SITE ATTRIBUTABLE TO THE EXISTING DEVELOPMENT, AND THAT THE FULLY DEVELOPED CONDITION WILL NOT EXCEED THE ALLOWABLE DISCHARGE RATES REFINED IN THE BHM REPORTS AND REFINED BY THE APS NORTHWEST EDUCATION MASTERPLAN. THE AHYMO MODEL IS CONSERVATIVE IN THAT ALL BASINS WERE ADDED TOGETHER WITHOUT ROUTING STORM DRAIN FLOWS, AND ALL BASINS WERE CONSERVATIVELY MODELED WITHOUT TAKING INTO ACCOUNT TIMES OF CONCENTRATION FOR SIZE AND LENGTH. ACTUAL PEAK DISCHARGES ARE EXPECTED TO BE LOWER THAN THOSE MODELED.

PROPOSED PRIVATE STORM DRAIN CAPACITIES SUMMARIZED ON THE TABLES HEREON WERE ANALYZED USING FLOWMASTER V6.0 TO CALCULATE NORMAL DEPTH CAPACITIES USING MANNING'S EQUATION FOR GRAVITY FLOWS. THESE CALCULATIONS ARE CONSERVATIVE AS ALL NONE OF THE SYSTEMS RELY UPON PRESSURE FLOW WHICH WOULD ALLOW FOR A MORE ACCURATE ANALYSIS. AS DEMONSTRATED BY THE SUMMARY, THE PROPOSED STORM DRAIN HAS ADEQUATE CAPACITY TO CONVEY THE 100-YEAR STORM IN BOTH THE PHASE 1 AND FUTURE CONDITIONS. FLOWMASTER AND AHYMO WERE ALSO USED TO CALCULATE THE CONTROLLED RATE OF DISCHARGE AT STRUCTURES S1 AND S2 IN BOTH THE PHASE 1 AND FUTURE CONDITIONS.

GRADED INLET CAPACITIES WERE CALCULATED USING EQUATION 4-27 FOR GRADE INLETS OPERATING AS AN ORIFICE USING THE METHODOLOGY FROM FHWA-94-96-078, URBAN DRAINAGE DESIGN MANUAL, HYDRAULIC ENGINEERING CIRCULAR NO. 22 (HEC-22). GRADE CAPACITIES WERE DETERMINED USING A CONSERVATIVE CLOSING FACTOR OF 50%.

VII. CONCLUSION

THE ANALYSIS AND EVALUATION CONTAINED HEREIN SUPPORTS THE PHASED DEVELOPMENT OF THE FIRST PHASE OF APS NW EDUCATION CORRIDOR WITH DISCHARGE OF DEVELOPED RUNOFF TO EXISTING DOWNSTREAM PUBLIC DRAINAGE STRUCTURES SIZED FOR THE DEVELOPED DISCHARGE AT RATES LESS THAN ALLOWABLE. THE DEVELOPMENT WILL RESULT IN AN INCREASE IN PEAK RATE AND VOLUME OF RUNOFF FOR THE OVERALL SITE BUT NOT EXCEED THE ALLOWABLE DISCHARGE RATES DETERMINED BY THE BHM AND NMPS REPORTS. CQA FIRST FLUSH REQUIREMENTS WILL BE MET BY PONDING ON SITE.

- THE PROPOSED DEVELOPMENT RESULTS IN AN INCREASE IN PEAK DISCHARGE AND VOLUME OF RUNOFF.
- THE PEAK DISCHARGE RATE DOES NOT EXCEED THE ALLOWABLE DISCHARGE RATE FOR THIS SITE.
- THE FIRST FLUSH REQUIREMENT FOR THE ENTIRE SITE WILL BE MET BY PONDING.
- SEEDMENT WILL BE COLLECTED AND RELEASED INTO THE NEW PRIVATE STORM DRAIN SYSTEM.
- THE PROPOSED DEVELOPMENT WILL NOT ADVERSELY AFFECT IMPACT DOWNSTREAM PROPERTIES OR DOWNSTREAM DRAINAGE CONDITIONS.
- OFFSITE FLOWS WILL NOT BE BLOCKED OR ALTERED.

CALCULATIONS

Drainage Basin Hydrologic Characteristics Table

DRAINAGE BASIN	AREA (AC)	LAND TREATMENTS (COA D.P.M)	VOLUME OF RUNOFF(CFS)	PEAK DISCHARGE (CFS)
DEVELOPED	DEVELOPED (%)	DEVELOPED	DEVELOPED	DEVELOPED
1.9-2A-1	17.2	78 22 0 0	32.757	32.3
1.9-2A-2	2.8	97 3 0 0	28.708	23.3
1.9-2A-3	2.8	70 15 15 0	7.100	7.0
1.9-2A-4	6.0	70 15 15 0	15.377	12.1
1.9-2A-5	13.7	95 5 0 0	15.333	11.8
1.9-2A-6	8.9	0 46 46 8	30.474	34.9
1.9-1B-1	2.7	0 47 47 6	16.683	13.1
1.9-1B-2	2.7	0 40 40 20	12.327	9.0
1.9-1B-3	5.4	0 18 18 64	32.680	20.1
1.9-2B	7.7	0 43 42 15	32.409	24.2
1.9-2C/20A	2.7	0 43 43 14	10.718	8.1
1.7-1A	3.3	- - - -	13.634	5.6
UD-4A	6.1	- - - -	26.441	11.7
1.9-1B/FF	21.8	- - - -	57.7	57.7
TOTAL	119.5	- - - -	334.018	268.3

SAG GRADE INLET CAPACITIES

HEC-22, EQUATION 4-27; Q = CA2gd^{5/4}
C = 0.67, g=32.2, d=DEPTH (FT), A = CLEAR OPENING AREA

CITY GRADE AREA = 4.56 SF (CLEAR)
ASSUME 50% CLOGGED, NET AREA = 2.28 SF; USE 2.28

INLET CAPACITY PER GRADE

DEPTH (FT)	FLOW (CFS)
1.0	12.3
1.5	15.0
2.0	17.3
2.5	19.4
3.0	21.2
4.0	22.0
5.0	24.5

AP-1: Q₁₀₀ = 70.8 CFS

DEPTH = 1.5 FT (WSL 11.5)
NEED 70.8/19.4 = 3.65; USE 4 INLETS (QUADRUPLE "D")

AP-2: Q₁₀₀ = 9.0 CFS

USE 1 INLET (SINGLE "D")

AP-5: Q₁₀₀ = 23.3 CFS

DEPTH = 1.5 FT (WSL 08.0)
NEED 23.3/15.0 = 1.6; USE 2 INLETS (DOUBLE "D")

AP-6: Q₁₀₀ = 32.3 CFS

DEPTH = 1.5 FT (WSL 11.0)
NEED 32.3/15.0 = 2.15; USE 3 INLETS (TRIPLE "D")

AP-7: Q₁₀₀ = 5.8 CFS

USE 1 INLET (SINGLE "D")

AP-8: Q₁₀₀ = 12.1 CFS

USE 1 INLET (SINGLE "D")

AP-13

POND INFLOW

Q₁₀₀ = 216.5 CFS

BASIN 1.9-28 QUINTEPLE INLET STRUCTURE

WSL ABOVE TOP OF GRADE	QUINTEPLE GRADE CAPACITY (CONTROLLING)	WSL ABOVE CENTROID OF PIPE OUTLET	48" PIPE CAPACITY (ORIFICE EON)
DEPTH (FT)	FLOW (CFS)	DEPTH (FT)	FLOW CFS
1.0	61.5	3.7	116.3
2.0	86.5	4.7	131.0
3.0	106.8	5.7	147.0
4.0	110	6.7	156.5
5.0	122.5	7.7	167.8

Note: WSL = 56 at Top of Grade

GRADE CAPACITY CONTROLS

POND OUTFLOW:

Q₁₀₀ = 101.9 CFS AFTER ROUTING THROUGH POND WITH AHYMO

AVERAGE ANNUAL SEDIMENT YIELD: 0.71 AC-FT/ SQUARE MILE/YEAR

1.9-24-1 - AREA= 0.02695 SQ MI; 0.71 X 0.02695 = 0.0191 AC-FT/YR OF SEDIMENT
SEDIMENT POND RETENTION VOLUME = 0.11 AC-FT (AVERAGE END AREA METHOD)
6 YEARS OF SEDIMENT STORAGE

1.9-24-2 - AREA= 0.02071 SQ MI; 0.71 X 0.02071 = 0.0147 AC-FT/YR OF SEDIMENT
SEDIMENT POND RETENTION VOLUME = 0.50 AC-FT (AVERAGE END AREA METHOD)
34.0 YEARS OF SEDIMENT STORAGE

1.9-24-3 - AREA= 0.0436 SQ MI; 0.71 X 0.0436 = 0.0311 AC-FT/YR OF SEDIMENT
SEDIMENT POND RETENTION VOLUME = 0.21 AC-FT (AVERAGE END AREA METHOD)
17.7 YEARS OF SEDIMENT STORAGE

1.9-24-4 - AREA= 0.020408 SQ MI; 0.71 X 0.020408 = 0.0067 AC-FT/YR OF SEDIMENT
SEDIMENT POND RETENTION VOLUME = 0.36 AC-FT (AVERAGE END AREA METHOD)
53.7 YEARS OF SEDIMENT STORAGE

1.9-18 OFFSITE - AREA= 0.0463 SQ MI; 0.71 X 0.0463 = 0.033 AC-FT/YR OF SEDIMENT
1.9-18-1 - AREA= 0.020408 SQ MI; 0.71 X 0.02042 = 0.0030 AC-FT/YR OF SEDIMENT
SEDIMENT POND RETENTION VOLUME = 0.085 AC-FT
2.3 YEARS OF SEDIMENT STORAGE

ENGINEERS - CERTIFICATION TEMPORARY C.O.

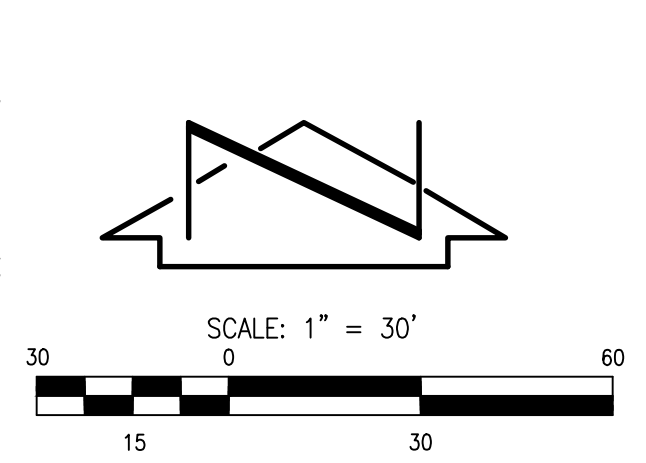
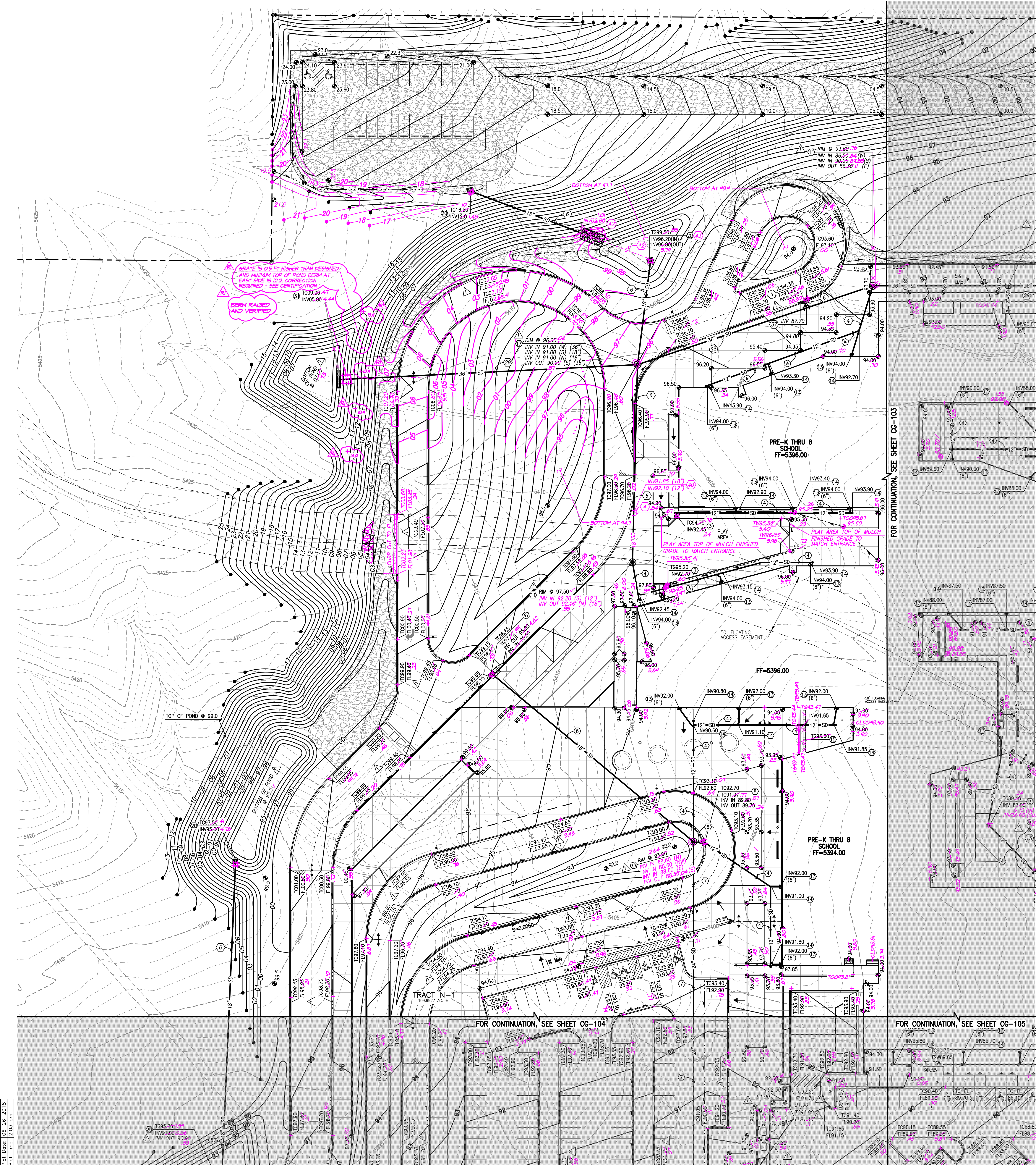
I, J. GRAEME MEANS, NMPS 13676, OF THE FIRM HIGH MESA CONSULTING GROUP HEREBY CERTIFY THAT THIS PROJECT HAS BEEN CONSTRUCTED, GRADED AND WILL DRAIN IN SUBSTANTIAL COMPLIANCE WITH AND IN ACCORDANCE WITH THE DESIGN INTENT OF THE APPROVED PLAN DATED 11/17/2016 WITH EXCEPTIONS THAT NEED TO BE CORRECTED PRIOR TO ISSUANCE OF PERMANENT CERTIFICATE OF OCCUPANCY. THESE EXCEPTIONS DO NOT IMPACT THE SITE TO THE EXTENT THAT A FUTURE CERTIFICATE OF OCCUPANCY SHOULD BE WITHHELD, AND ARE DESCRIBED AND EXPLAINED BY THE FOLLOWING:

THE FOLLOWING DEVIATIONS WERE NOTED AND WILL REQUIRE CORRECTION PRIOR TO ENGINEER'S FINAL CERTIFICATION FOR PERMANENT CERTIFICATE OF OCCUPANCY:

- THE STORM INLET IN THE NORTHWEST SEDIMENT/FLOW COLLECTION POND (AP-1) WAS CONSTRUCTED 0.5 FT HIGHER THAN PLAN, AND THE POND DOES NOT HAVE THE REQUIRED TOP OF BERM/CONTAINMENT ELEVATIONS ON THE EAST SIDE TO CONTAIN A 100-YEAR EVENT WITH THE DESIGNED SAFETY MARGIN/FREEDBOARD. AS DEMONSTRATED BY THE ATTACHED ANALYSIS, THE POND WILL BE ABLE TO ACCOMMODATE THE REQUIRED FLOW RATE WITH 0.2 FT OF FREEDBOARD (CONSERVATIVELY INCLUDING A 50% CLOSING FACTOR) IN THE CURRENT CONDITION AND DOES NOT PRESENT AN IMMINENT HAZARD THAT WOULD PRECLUDE TEMPORARY CERTIFICATION. THE FREEDBOARD CONDITION AND/OR THE GRADE ELEVATION MUST BE CORRECTED AND VERIFIED PRIOR TO FINAL CERTIFICATION FOR PERMANENT CERTIFICATE OF OCCUPANCY. SEE SHEET CG-103 AND ATTACHED SUPPORTING INFORMATION.
- THE MAIN DETENTION POND LOCATED AT THE EAST END OF THE SITE DOES NOT HAVE THE REQUIRED TOP OF BERM/CONTAINMENT ELEVATIONS ON THE EAST SIDE TO CONTAIN THE FUTURE CONDITIONS 100-YEAR EVENT WITH THE DESIGNED SAFETY MARGIN/FREEDBOARD. AS DEMONSTRATED BY THE ATTACHED ANALYSIS, THE POND WILL BE ABLE TO ACCOMMODATE THE REQUIRED FLOW RATE WITH 1.4 FT OF FREEDBOARD (CONSERVATIVELY INCLUDING A 50% CLOSING FACTOR) IN THE CURRENT (INTERIM) CONDITION AND DOES NOT PRESENT AN IMMINENT HAZARD THAT WOULD PRECLUDE TEMPORARY CERTIFICATION. THE FREEDBOARD CONDITION AND/OR THE GRADE ELEVATION MUST BE CORRECTED AND VERIFIED PRIOR TO FINAL CERTIFICATION FOR PERMANENT CERTIFICATE OF OCCUPANCY. SEE SHEET CG-103 AND ATTACHED SUPPORTING INFORMATION.
- THE NEW GRADED LID MANHOLE LOCATED AT THE POND OUTFALL STORM DRAIN CONNECTION TO THE PRE-EXISTING OUTLET PIPE WAS CONSTRUCTED 1 FT BELOW THE DESIGN ELEVATION. THE INTENT WAS TO HAVE THE RIM SET 1 FT ABOVE GRADE TO ALLOW FOR SEDIMENT COLLECTION AROUND THE MANHOLE WITHOUT ALLOWING SEDIMENT TO ENTER THE GRADE. IN LIEU OF RAISING THE RIM, THE SURROUNDING GRADE SHALL BE CUT DOWN TO MEET THE INTENT. THIS CONDITION MUST BE CORRECTED AND VERIFIED PRIOR TO FINAL CERTIFICATION FOR PERMANENT CERTIFICATE OF OCCUPANCY. SEE SHEET CG-103.
- THE EAST PLAY FIELD CONSTRUCTION THAT WAS IN PROGRESS DURING PREVIOUS CERTIFICATION HAS BEEN COMPLETED.
- THE STORM INLET IN THE SOUTHWEST SEDIMENT/FLOW COLLECTION POND WAS CONSTRUCTED 1.1 FT HIGHER THAN PLAN (IT SHOULD BE NOTED THAT A 0.5 FT INCREASE WAS AUTHORIZED DURING CONSTRUCTION), AND THE POND DOES NOT HAVE THE REQUIRED TOP OF BERM ELEVATIONS ON THE EAST SIDE TO CONTAIN A 100-YEAR EVENT. THE POND WILL ACCOMMODATE THE REQUIRED FLOW RATE WITH 0.2 FT OF FREEDBOARD AND A CLOSING FACTOR OF 50%, AND DOES NOT PRESENT AN IMMINENT HAZARD THAT WOULD PRECLUDE TEMPORARY CERTIFICATION. THIS CONDITION MUST BE CORRECTED AND VERIFIED PRIOR TO FINAL CERTIFICATION FOR PERMANENT CERTIFICATE OF OCCUPANCY. SEE SHEET CG-104 AND ATTACHED SUPPORTING INFORMATION.

UPON CORRECTION OF THE PRECEDING ITEMS, A FOLLOW UP VERIFICATION AND CERTIFICATION WILL BE PROVIDED FOR PERMANENT CERTIFICATE OF OCCUPANCY.

THE RECORD INFORMATION PRESENTED HEREON IS NOT NECESSARILY COMPLETE AND INTENDED ONLY TO VERIFY SUBSTANTIAL COMPLIANCE OF THE GRADING AND DRAINAGE ASPECTS OF THIS PROJECT. THIS CERTIFICATION DOES NOT ADDRESS AOA COMPLIANCE WHICH IS BEYOND THE SCOPE OF GRADING AND DRAINAGE. THOSE RELYING ON THIS RECORD DOCUMENT ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE USING IT FOR ANY OTHER PURPOSE.



- KEYED NOTES (APPLY TO SHEETS CG-102 - CG-105)**
- CONSTRUCT SINGLE 12" INLET PER STD DWG 2205, SHEET CG-301
 - CONSTRUCT TRENCH DRAIN PER TYPICAL SECTION & DETAILS, SHEET CG-301
 - CONSTRUCT 24" STORM INLET PER TYPICAL SECTION, SHEET CG-301
 - INSTALL 12" HDPE (SMOOTH INTERIOR) STORM DRAIN
 - CONSTRUCT SINGLE 12" STORM INLET PER STD DWG 2206, SHEET CG-301
 - INSTALL 18" HDPE (SMOOTH DIAMETER) STORM DRAIN
 - INSTALL 24" HDPE (SMOOTH DIAMETER) STORM DRAIN
 - CONSTRUCT SINGLE 12" STORM INLET PER STD DWG 2201, SHEET CG-301
 - INSTALL STORM BARRIER PER TYPICAL SECTION AND DETAILS, SHEET CG-301
 - CONSTRUCT DOUBLE 12" STORM INLET PER STD DWG 2205, SHEET CG-301
 - CONSTRUCT 4" DIA STORM DRAIN MANHOLE PER STD DWG 2101, SHEET CG-301
 - NOT USED
 - CONNECT SITE DRAIN TO BUILDING ROOF DRAIN, SIZE AND INVERT AS NOTED. REFER TO PLUMBING PLANS FOR CONTINUATION AND VERIFY CONNECTION POINT PRIOR TO INSTALLATION OF SITE LINES.
 - INSTALL COMBINATION BEND/WYE WITH SINGLE CLEANOUT TO GRADE WITH CONCRETE PAD PER DETAIL, SHEET CU-301
 - CONNECT TRENCH DRAIN TO SITE DRAIN.
 - INSTALL 30" HDPE (SMOOTH INTERIOR) STORM DRAIN
 - INSTALL 6" DIAMETER STORM DRAIN MANHOLE PER STD DWG 2101, SHEET CG-301
 - CONSTRUCT PARKING LOT RUNDOWN PER TYPICAL SECTION, SHEET CG-301.
 - INSTALL 12"x36" HDPE TEE
 - CONSTRUCT SINGLE 12" INLET PER STD DWG 2205, SHEET CG-301
 - CONSTRUCT TRIPLE 12" INLET PER STD DWG 2205, SHEET CG-301
 - INSTALL 10" LONG 24" HDPE STUD WITH CAP
 - INSTALL 36" PREFABRICATED HDPE END SECTION.
 - INSTALL 42" HDPE (SMOOTH INTERIOR) STORM DRAIN
 - INSTALL 18" LONG x10" WIDE WIRE TIED RIP-RAP APRON (18" THICK, TYPE M) PER RIP-RAP ENERGY DISSIPATOR, SHEET CG-301
 - CONSTRUCT 6" DIAMETER PVC REVERSE INCLINE PORTS ON TRIPLE 12" INLET PER TYPICAL DETAIL, SHEET CG-301
 - INSTALL 48" HDPE (SMOOTH INTERIOR) STORM DRAIN
 - INSTALL 48" PREFABRICATED HDPE END SECTION.
 - INSTALL 36" HDPE (SMOOTH INTERIOR) STORM DRAIN
 - CONSTRUCT DOUBLE 12" INLET PER STD DWG 2205, SHEET CG-301
 - CONSTRUCT QUADRUPEL 12" INLET PER STD DWG 2205, SHEET CG-301
 - INSTALL 18" TO 48" HDPE TEE
 - INSTALL 10" HDPE STUBOUT, S=0.0080
 - INSTALL 48"x24" HDPE TEE
 - CONSTRUCT 8" DIAMETER STORM DRAIN MANHOLE PER STD. DWG. 2101, SHEET CG-301
 - CONSTRUCT QUINUPLE 12" INLET PER STD DWG 2205, SHEET CG-301
 - INSTALL 18" x 36" HDPE TEE
 - INSTALL 15" LONG x10" WIDE WIRE TIED RIP-RAP APRON (18" THICK, TYPE M) PER NAWMA STD DWG 2270.
 - REFUSE AREA DRAIN TO SANITARY SYSTEM, SEE SHEET CU-101
 - INSTALL 12"x18" HDPE TEE
 - INSTALL 6" DIAMETER STORM DRAIN MANHOLE PER STD DWG 2101.
 - REMOVE AND DISPOSE OF EXISTING 18" STORM DRAIN LINE.
 - FILL EXISTING 18" (N) STORM DRAIN OPENING WITH CONCRETE.

- CONSTRUCTION NOTES:**
- TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM, 811, FOR DESIGNATION (LINE-SPOTTING) OF EXISTING PUBLIC UTILITIES AND EXISTING UTILITIES OWNED AND OPERATED BY ALBUQUERQUE PUBLIC SCHOOLS.
 - PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE AND VERIFY THE HORIZONTAL AND VERTICAL LOCATION OF ALL POTENTIAL OBSTRUCTIONS. SHOULD A CONFLICT EXIST, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING SO THAT THE CONFLICT CAN BE RESOLVED WITH A MINIMUM AMOUNT OF DELAY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL INTERPRETATIONS IT MAKES WITHOUT FIRST CONSULTING THE ENGINEER AS REQUIRED ABOVE.
 - ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
 - ALL CONSTRUCTION WITHIN PUBLIC RIGHT-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE NAWMA STANDARDS AND PROCEDURES.
 - UTILITY INFORMATION SHOWN HEREON IS BASED UPON ON-SITE SURVEY EVIDENCE, CITY OF ALBUQUERQUE AND AERIAL DISTRIBUTION MAPS, SCHOOL FILES OF THE ALBUQUERQUE PUBLIC SCHOOLS FACILITIES DESIGN AND CONSTRUCTION, AND UTILITY LINE-SPOTS PROVIDED BY ONPOINT UTILITY LOCATING SERVICES, FIELD DESIGNATION REPORT DATED 05-05-2015. IN ADDITION, UTILITY LINE-SPOTS WERE REQUESTED VIA THE NEW MEXICO ONE CALL SERVICE (TICKET NOS. 2015191272, 2015191283 AND 2015191289). UTILITY LINES THAT APPEAR ON THESE DRAWINGS ARE SHOWN IN AN APPROXIMATE MANNER ONLY, AND SUCH LINES MAY EXIST WHERE NONE ARE SHOWN. IF ANY SUCH EXISTING LINES ARE SHOWN, THE LOCATION IS BASED UPON INFORMATION PROVIDED BY THE OWNER OF SAID UTILITY, AND THE INFORMATION MAY BE INCOMPLETE, OR MAY BE OBSOLETE BY THE TIME CONSTRUCTION COMMENCES. THE ENGINEER HAS CONDUCTED ONLY PRELIMINARY INVESTIGATION OF THE LOCATION, DEPTH, SIZE, OR TYPE OF EXISTING UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES. THIS INVESTIGATION IS NOT CONCLUSIVE, AND MAY NOT BE COMPLETE. THEREFORE, THE CONTRACTOR MAKES NO REPRESENTATION PERTAINING HERETO, AND ASSUMES NO RESPONSIBILITY OR LIABILITY THEREFOR. THE CONTRACTOR SHALL INFORM ITSELF OF THE LOCATION OF ANY UTILITY LINE, PIPELINE, OR UNDERGROUND UTILITY LINE IN OR NEAR THE AREA OF THE WORK IN ADVANCE OF AND DURING EXCAVATION WORK. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE CAUSED BY ITS FAILURE TO LOCATE, IDENTIFY AND PRESERVE ANY AND ALL EXISTING UTILITIES, PIPELINES, AND UNDERGROUND UTILITY LINES. IN PLANNING AND CONDUCTING EXCAVATION, THE CONTRACTOR SHALL COMPLY WITH STATE STATUTES, MUNICIPAL AND LOCAL ORDINANCES, RULES AND REGULATIONS, IF ANY, PERTAINING TO THE LOCATION OF THESE UTILITY LINES AND FACILITIES.
 - THE DESIGN OF PLANTERS AND LANDSCAPED AREAS IS NOT PART OF THIS PLAN. ALL PLANTERS AND LANDSCAPED AREAS ADJACENT TO THE BUILDING(S) SHALL BE PROVIDED WITH POSITIVE DRAINAGE TO AVOID ANY PONDING ADJACENT TO THE STRUCTURE. GRADES SHOWN HEREON ARE FINISHED GRADES AFTER INSTALLATION OF LANDSCAPING AND GRAVEL OR MULCH. REFER TO LANDSCAPING PLANS FOR DETAILS TO SOIL SUBGRADE IN LANDSCAPED AREAS. FOR CONSTRUCTION DETAILS, REFER TO LANDSCAPING PLAN.
 - AN EXCAVATION/CONSTRUCTION PERMIT WILL BE REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY RIGHT-OF-WAY. AN APPROVED COPY OF THESE PLANS MUST BE SUBMITTED AT THE TIME OF APPLICATION FOR THIS PERMIT.
 - BACKFILL COMPACTION SHALL BE ACCORDING TO MATERIAL STREET USE.
 - MAINTENANCE OF THESE FACILITIES SHALL BE THE RESPONSIBILITY OF THE OWNER OF THE PROPERTY SERVED.
 - WORK ON ARTERIAL STREETS SHALL BE PERFORMED ON A 24-HOUR BASIS.

- EROSION & SEDIMENT CONTROL MEASURES:**
- THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES INTO PUBLIC RIGHT-OF-WAY OR ONTO PRIVATE PROPERTY.
 - THE CONTRACTOR SHALL PROMPTLY CLEAN UP ANY MATERIAL EXCAVATED WITHIN THE PUBLIC RIGHT-OF-WAY SO THAT THE EXCAVATED MATERIAL IS NOT SUSCEPTIBLE TO BEING WASHED DOWN THE STREET.
 - SPOILS FROM THE PROJECT SHALL NOT BE DEPOSITED OR STORED IN THE STREET OR ROADWAY.
 - SPOILS SHALL BE STAGED ON THE UPSTREAM SIDE OF TRENCHES WHEN TRENCHING IS REQUIRED.
 - THE CONTRACTOR SHALL CLEAN AND REMOVE ALL FUGITIVE DUST, SOIL, AND DEBRIS RESULTING FROM THIS PROJECT FROM THE STREET AT THE END OF EACH DAY.
 - CONTRACTOR SHALL LEAVE THE AREA IMMEDIATELY BEHIND THE CURB DEPRESSION TO CONTAIN UNWASHED FLOWS AND SEDIMENT.
 - CONCRETE TRUCKS SHALL BE SENT BACK TO THE PLANT FOR WASHING. THE WASHING OF CONCRETE TRUCKS SHALL NOT BE PERMITTED WITHIN THE PUBLIC RIGHT-OF-WAY.
 - WHEN APPLICABLE, CONTRACTOR SHALL SECURE "TOPSOIL DISTURBANCE PERMIT" FROM THE CITY AND/OR FILE A NOTICE OF INTENT (N.O.I.) WITH THE EPA PRIOR TO BEGINNING CONSTRUCTION.
 - UNLESS FINAL STABILIZATION IS OTHERWISE PROVIDED FOR, ANY AREAS OF EXCESS DISTURBANCE (TRAFFIC ACCESS, STORAGE, EXCAVATED MATERIAL, ETC.) SHALL BE RE-SEEDING ACCORDING TO CITY OF ALBUQUERQUE SPECIFICATION 1012 MISCELLANEOUS SEEDING. THIS WILL BE CONSIDERED INCIDENTAL TO CONSTRUCTION, THEREFORE, NO SEPARATE PAYMENT WILL BE MADE.
 - PROTECT EXISTING STORM DRAIN FACILITIES FROM SEDIMENT AS REQUIRED.

- LEGEND**
- PROPOSED AGGREGATE BASE COURSE
 - PROPOSED 2" - 4" BASALT COBBLES (BY APS LANDSCAPE CONTRACTOR, N.L.C.)

NO.	DATE	BY	REVISIONS
1	11/2016	R.J.C.	COA COMMENTS REVISIONS
2	06/2018	B.M.	ENGINEER'S CERTIFICATION (TEMPORARY C.O.)
3	10/2018	B.M.	ENGINEER'S CERTIFICATION (PERMANENT C.O.)

SURVEY NOTE:

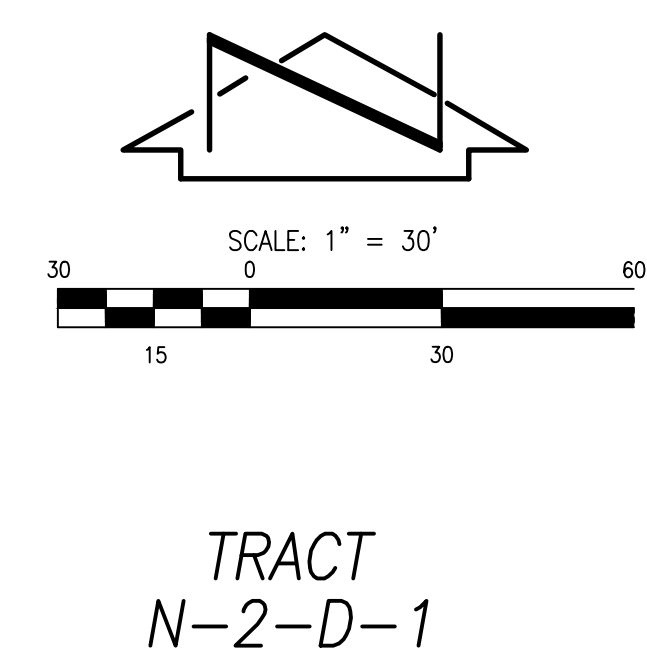
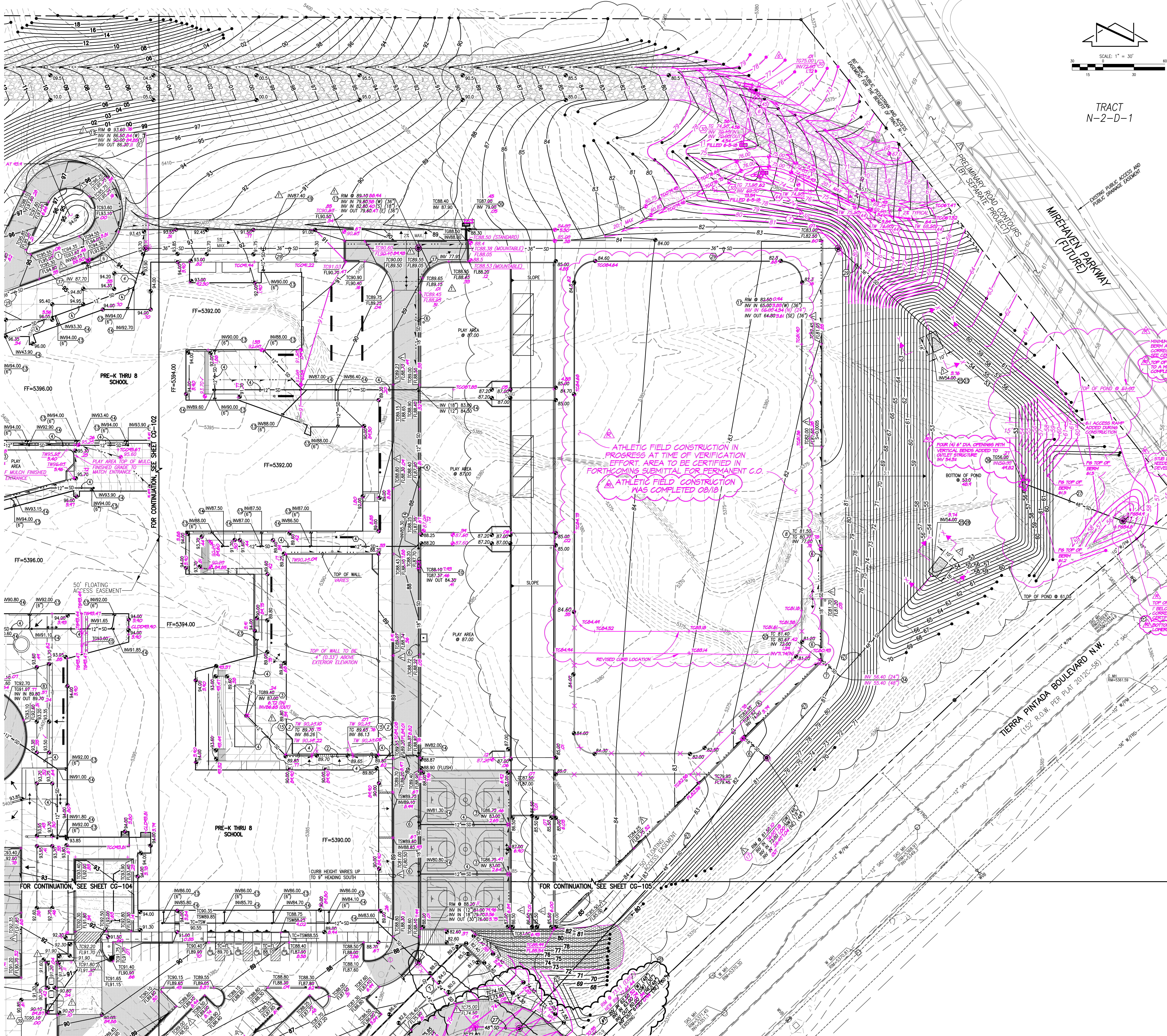
THIS IS NOT A BOUNDARY SURVEY; DATA IS SHOWN FOR ORIENTATION ONLY. THE BOUNDARY, TOPOGRAPHIC & UTILITY SURVEY INFORMATION DEPICTED BY THIS PLAN IS BASED UPON THE BOUNDARY, TOPOGRAPHIC AND UTILITY SURVEY PREPARED BY HIGH MESA CONSULTING GROUP, NMPS 11184, DATED 01/09/2016 (2014-1613). FALSOZED BOUNDARY INFORMATION DEPICTED BY THIS PLAN IS BASED UPON PLAT OF PULTE @ WIREHAVEN PHASE 2A, PREPARED BY BHANNAY HUSTON, NMPS 16489, RECORDED 05/20/2016

- RECORD DRAWING LEGEND**
- CONSTRUCT RECORD INFORMATION (VERIFIED BY ENGINEER)
 - AS-CONSTRUCTED + AS-DESIGNED (VERIFIED BY AS-BUILT SURVEY)
 - 36" 42" RECORD INFORMATION FROM AS-BUILT SURVEY
 - +28.2 RECORD INFORMATION FROM AS-BUILT SURVEY
 - 28.95 42" RECORD INFORMATION FROM AS-BUILT SURVEY
 - 97 FIELD DESIGN GRADING MODIFICATIONS (NOT AS-BUILT SURVEY DATA)

RECORD DRAWING
FOR CERTIFICATION, SEE SHEET C-001

2017.18.18
2015.055.T

10-01-2018
11-17-2016
8-24-2016
7-17-2016



KEY NOTES (APPLY TO SHEETS CG-102 - CG-105)

1. CONSTRUCT SINGLE 12" INLET PER STD DWG 2205, SHEET CG-301
2. CONSTRUCT TRENCH DRAIN PER TYPICAL SECTION & DETAILS, SHEET CG-301
3. CONSTRUCT 24" STORM INLET PER TYPICAL SECTION, SHEET CG-301
4. INSTALL 12" HDPE (SMOOTH INTERIOR) STORM DRAIN
5. CONSTRUCT SINGLE 10" STORM INLET PER STD DWG 2206, SHEET CG-301
6. INSTALL 18" HDPE (SMOOTH DIAMETER) STORM DRAIN
7. INSTALL 24" HDPE (SMOOTH DIAMETER) STORM DRAIN
8. CONSTRUCT SINGLE 4" STORM INLET PER STD DWG 2201, SHEET CG-301
9. INSTALL STORM BARREL PER TYPICAL SECTION AND DETAILS, SHEET CG-301
10. CONSTRUCT DOUBLE 12" STORM INLET PER STD DWG 2205, SHEET CG-301
11. CONSTRUCT 4" DIA STORM DRAIN MANHOLE PER STD DWG 2101, SHEET CG-301
12. NOT USED
13. CONNECT SITE DRAIN TO BUILDING ROOF DRAIN, SIZE AND INVERT AS NOTED. REFER TO PLUMBING PLANS FOR CONTINUATION AND VERIFY CONNECTION POINT PRIOR TO INSTALLATION OF SITE LINES.
14. INSTALL COMBINATION BEND/WIRE WITH SINGLE CLEANOUT TO GRADE WITH CONCRETE PAD PER DETAIL, SHEET CU-301
15. CONNECT TRENCH DRAIN TO SITE DRAIN.
16. INSTALL 30" HDPE (SMOOTH INTERIOR) STORM DRAIN
17. INSTALL 6" DIAMETER STORM DRAIN MANHOLE PER STD DWG 2101, SHEET CG-301
18. CONSTRUCT PARKING LOT RUNDOWN PER TYPICAL SECTION, SHEET CP-301.
19. INSTALL 12"x36" HOPE TEE
20. CONSTRUCT SINGLE 10" INLET PER STD DWG 2205, SHEET CG-301
21. CONSTRUCT TRIPLE 10" INLET PER STD DWG 2205, SHEET CG-301
22. INSTALL 10' LONG 24" HOPE STUB WITH CAP
23. INSTALL 6" PREFABRICATED HOPE END SECTION
24. INSTALL 42" HDPE (SMOOTH INTERIOR) STORM DRAIN
25. INSTALL 18" LONG x10' WIDE WIRE TIED RIP-RAP APRON (18" THICK, TYPE M) PER RIP-RAP ENERGY DISSIPATOR, SHEET CG-301
26. CONSTRUCT 6" DIAMETER PVC REVERSE INCLINE PORTS ON TRIPLE 10" INLET PER TYPICAL DETAIL, SHEET CG-301
27. INSTALL 48" HDPE (SMOOTH INTERIOR) STORM DRAIN
28. INSTALL 48" PREFABRICATED HOPE END SECTION
29. INSTALL 36" HDPE (SMOOTH INTERIOR) STORM DRAIN
30. CONSTRUCT DOUBLE 10" INLET PER STD DWG 2205, SHEET CG-301
31. CONSTRUCT QUADRUPLER 10" INLET PER STD DWG 2205, SHEET CG-301
32. INSTALL 18" TO 48" HOPE TEE
33. INSTALL 10' HOPE STUBOUT, S=0.0080
34. INSTALL 48"x24" HOPE TEE
35. CONSTRUCT 6" DIAMETER STORM DRAIN MANHOLE PER STD. DWG. 2101, SHEET CG-301
36. CONSTRUCT QUINTEPLER 10" INLET PER STD DWG 2205, SHEET CG-301
37. INSTALL 18" x 36" HOPE TEE
38. INSTALL 15' LONG x10' WIDE WIRE TIED RIP-RAP APRON (18" THICK, TYPE M) PER ANAIPM STD DWG 2270.
39. REFUSE AREA DRAIN TO SANITARY SYSTEM, SEE SHEET CU-101
40. INSTALL 12"x18" HOPE TEE

CONSTRUCTION NOTES:

1. REFER TO SHEET CG-102.

EROSION & SEDIMENT CONTROL MEASURES:

1. REFER TO SHEET CG-102.
2. INSTALL 6" DIAMETER STORM DRAIN MANHOLE PER STD DWG 2101, SHEET CG-301 WITH REVERSE GRATE IN PLACE OF LID
3. REMOVE AND DISPOSE OF EXISTING 18" STORM DRAIN LINE
4. FILL EXISTING 18" (N) STORM DRAIN OPENING WITH CONCRETE.
5. CONSTRUCT CONCRETE RETAINING WALL TYPE "A" PER A1/S-601
6. INSTALL STRAW BALE CHECK DAM DOWNSTREAM OF INLET

RECORD DRAWING LEGEND

- CONSTRUCT
- RECORD INFORMATION (VERIFIED BY ENGINEER)
 - AS-CONSTRUCTED + AS-DESIGNED (VERIFIED BY AS-BUILT SURVEY)
 - 36" 42"
 - +25.2
 - RECORD INFORMATION FROM AS-BUILT SURVEY
 - 28.95' 42"
 - RECORD INFORMATION FROM AS-BUILT SURVEY
 - 97
 - FIELD DESIGN GRADING MODIFICATIONS (NOT AS-BUILT SURVEY DATA)

RECORD DRAWING FOR CERTIFICATION, SEE SHEET C-001

LEGEND

- PROPOSED ASPHALT PAVING
- PROPOSED CONCRETE
- PROPOSED AGGREGATE BASE COURSE
- PROPOSED 2" - 4" BASALT COBBLES (BY AFS LANDSCAPE CONTRACTOR, N.C.)
- PROPOSED RIP RAP

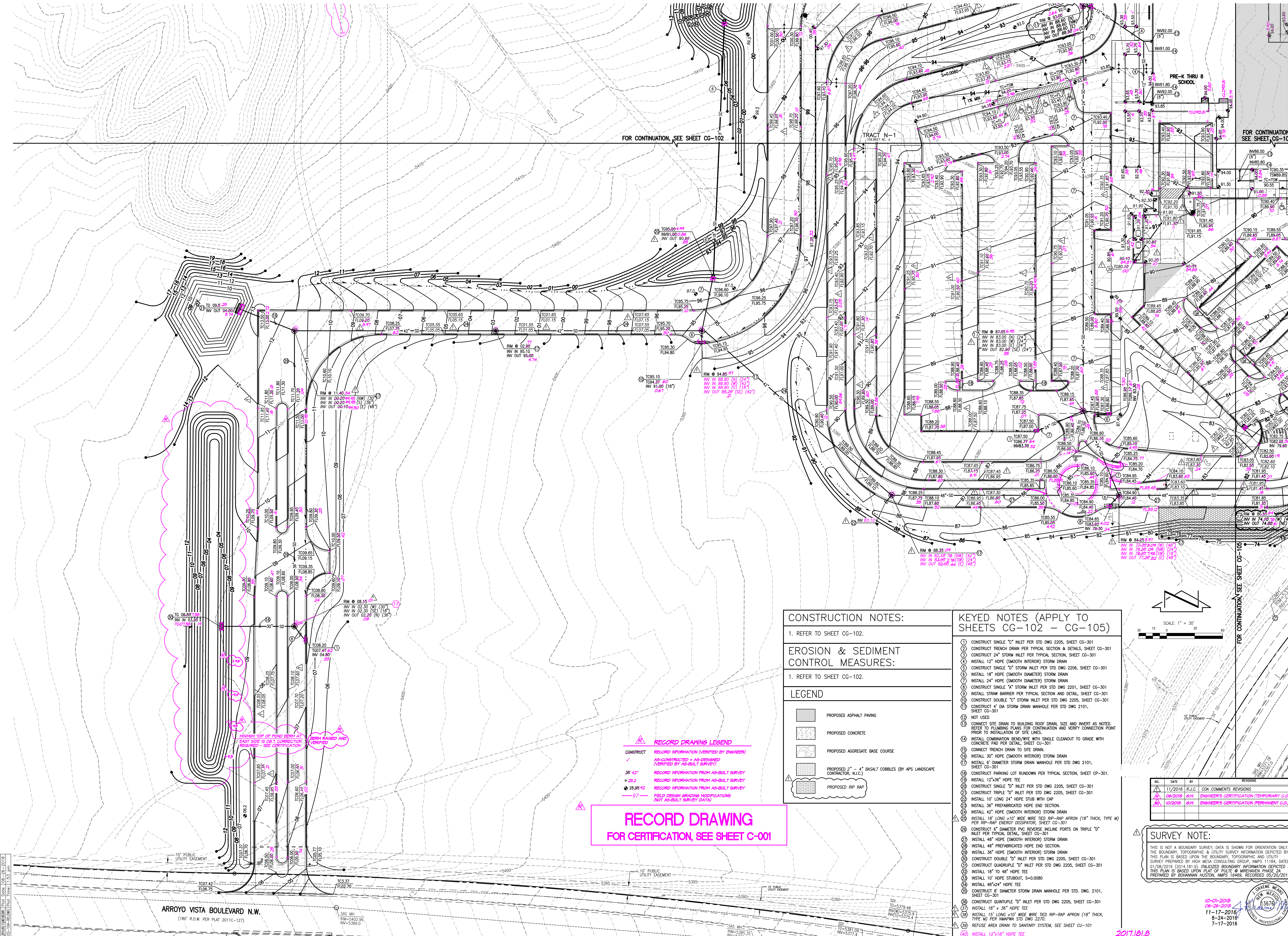
NO.	DATE	BY	REVISIONS
1	11/2016	R.J.C.	CDM COMMENTS REVISIONS
2	06/2018	S.M.	ENGINEER'S CERTIFICATION (TEMPORARY C.O.)
3	10/2018	S.M.	ENGINEER'S CERTIFICATION (PERMANENT C.O.)

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2017.181.B
2015.055.T



FOR CONTINUATION, SEE SHEET CG-102

FOR CONTINUATION, SEE SHEET CG-103

CONSTRUCTION NOTES:

- 1. REFER TO SHEET CG-102.

EROSION & SEDIMENT CONTROL MEASURES:

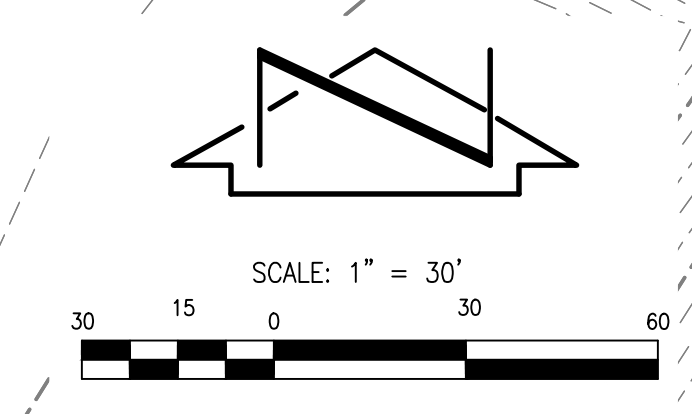
- 1. REFER TO SHEET CG-102.

LEGEND

- PROPOSED ASPHALT PAVING
- PROPOSED CONCRETE
- PROPOSED AGGREGATE BASE COURSE
- PROPOSED 2" - 4" BASALT COBBLES (BY APS LANDSCAPE CONTRACTOR, N.L.C.)
- PROPOSED RIP RAP

KEYED NOTES (APPLY TO SHEETS CG-102 - CG-105)

- 1. CONSTRUCT SINGLE "C" INLET PER STD DWG 2205, SHEET CG-301
- 2. CONSTRUCT TRENCH DRAIN PER TYPICAL SECTION & DETAILS, SHEET CG-301
- 3. CONSTRUCT 24" STORM INLET PER TYPICAL SECTION, SHEET CG-301
- 4. INSTALL 12" HDPE (SMOOTH INTERIOR) STORM DRAIN
- 5. CONSTRUCT SINGLE "D" STORM INLET PER STD DWG 2206, SHEET CG-301
- 6. INSTALL 18" HDPE (SMOOTH DIAMETER) STORM DRAIN
- 7. INSTALL 24" HDPE (SMOOTH DIAMETER) STORM DRAIN
- 8. CONSTRUCT SINGLE "X" STORM INLET PER STD DWG 2201, SHEET CG-301
- 9. INSTALL STRAW BARRIER PER TYPICAL SECTION AND DETAIL, SHEET CG-301
- 10. CONSTRUCT DOUBLE "C" STORM INLET PER STD DWG 2205, SHEET CG-301
- 11. CONSTRUCT 4" DIA STORM DRAIN MANHOLE PER STD DWG 2101, SHEET CG-301
- 12. NOT USED
- 13. CONNECT SITE DRAIN TO BUILDING ROOF DRAIN, SIZE AND INVERT AS NOTED, REFER TO PLUMBING PLANS FOR CONTINUATION AND VERIFY CONNECTION POINT PRIOR TO INSTALLATION OF SITE LINES.
- 14. INSTALL CONCRETE BENT/RYE WITH SINGLE CLEANOUT TO GRADE WITH CONCRETE PAD PER DETAIL, SHEET CG-301
- 15. CONNECT TRENCH DRAIN TO SITE DRAIN.
- 16. INSTALL 30" HDPE (SMOOTH INTERIOR) STORM DRAIN
- 17. INSTALL 6" DIAMETER STORM DRAIN MANHOLE PER STD DWG 2101, SHEET CG-301
- 18. CONSTRUCT PARKING LOT RUNDOWN PER TYPICAL SECTION, SHEET CG-301.
- 19. INSTALL 12"x36" HDPE TEE
- 20. CONSTRUCT SINGLE "D" INLET PER STD DWG 2205, SHEET CG-301
- 21. CONSTRUCT TRIPLE "D" INLET PER STD DWG 2205, SHEET CG-301
- 22. INSTALL 10" LONG 24" HOPE STUD WITH CAP
- 23. INSTALL 36" PREFABRICATED HOPE END SECTION
- 24. INSTALL 42" HDPE (SMOOTH INTERIOR) STORM DRAIN
- 25. INSTALL 18" LONG x10" WIDE WIRE TIED RIP-RAP APRON (18" THICK, TYPE M) PER RIP-RAP ENERGY DISSIPATOR, SHEET CG-301
- 26. CONSTRUCT 6" DIAMETER PVC REVERSIBLE INCLINE PORTS ON TRIPLE "D" INLET PER TYPICAL DETAIL, SHEET CG-301
- 27. INSTALL 48" HDPE (SMOOTH INTERIOR) STORM DRAIN
- 28. INSTALL 48" PREFABRICATED HOPE END SECTION
- 29. INSTALL 36" HDPE (SMOOTH INTERIOR) STORM DRAIN
- 30. CONSTRUCT DOUBLE "D" INLET PER STD DWG 2205, SHEET CG-301
- 31. CONSTRUCT QUADRUPLE "D" INLET PER STD DWG 2205, SHEET CG-301
- 32. INSTALL 18" TO 48" HDPE TEE
- 33. INSTALL 10" HOPE STUBOUT, S=0.0080
- 34. INSTALL 48"x24" HDPE TEE
- 35. CONSTRUCT 8" DIAMETER STORM DRAIN MANHOLE PER STD. DWG. 2101, SHEET CG-301
- 36. CONSTRUCT QUINTUPLE "D" INLET PER STD DWG 2205, SHEET CG-301
- 37. INSTALL 18" x 36" HDPE TEE
- 38. INSTALL 15" LONG x10" WIDE WIRE TIED RIP-RAP APRON (18" THICK, TYPE M) PER MARINA STD DWG 2270.
- 39. REFUSE AREA DRAIN TO SANITARY SYSTEM, SEE SHEET CG-101
- 40. INSTALL 12"x18" HDPE TEE



FOR CONTINUATION, SEE SHEET CG-105

RECORD DRAWING LEGEND

- CONSTRUCT RECORD INFORMATION (VERIFIED BY ENGINEER)
- AS-CONSTRUCTED = AS-DESIGNED (VERIFIED BY AS-BUILT SURVEY)
- 36" 42" RECORD INFORMATION FROM AS-BUILT SURVEY
- 28.95' RECORD INFORMATION FROM AS-BUILT SURVEY
- 9.7' FIELD DESIGN GRADING MODIFICATIONS (NOT AS-BUILT SURVEY DATA)

RECORD DRAWING
FOR CERTIFICATION, SEE SHEET C-001

SURVEY NOTE:
THIS IS NOT A BOUNDARY SURVEY; DATA IS SHOWN FOR ORIENTATION ONLY. THE BOUNDARY, TOPOGRAPHIC & UTILITY SURVEY INFORMATION DEPICTED BY THIS PLAN IS BASED UPON THE BOUNDARY, TOPOGRAPHIC AND UTILITY SURVEY PREPARED BY HIGH MESA CONSULTING GROUP, NMPS 11184, DATED 01/09/2016 (2014 61.9). FALCIZED BOUNDARY INFORMATION DEPICTED BY THIS PLAN IS BASED UPON PLAT OF PLUTE @ WIREHAWN PHASE 2A, PREPARED BY BOHANNAN HUSTON, NMPS 16489, RECORDED 05/20/2016

2017.18.1
2015.055.T

ARROYO VISTA BOULEVARD N.W.
(180' R.O.W. PER PLAT 2011C-127)

File Name: 21000105031_CG-104-1010.dwg Plot Time: 1/3/2018
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