CITY OF ALBUQUERQUE

July 28, 2016

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

Re: Reginald Chavez Elementary School
2700 Mountain Rd NW
Request Permanent C.O. - Accepted
Engineer's Stamp dated: 11/5/2014 (J12D009)
Certification dated: 7-26-16

Dear Mr. Graeme,

Based on the Certification received 7/26/2016, the site is acceptable for release of Certificate of Occupancy by Hydrology.

If you have any questions, you can contact me at 924-3695 or Totten Elliott at 924-3982.

Sincerely,

Rita Harmon, P.E.
Senior Engineer, Planning Dept.
Development Review Services

TE/RH
C: email, Cordova, Camille C.; Miranda, Rachel; Sandoval, Darlene M.; Lois Blocker

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DRAINAGE PLAN

I. INTRODUCTION AND EXECUTIVE SUMMARY

THIS PROJECT, LOCATED WITHIN THE OLD TOWN AREA OF THE CITY OF ALBUQUERQUE, REPRESENTS A MODIFICATION TO AN EXISTING APS SCHOOL SITE WITHIN AN INFILL AREA. THE PROPOSED IMPROVEMENTS CONSIST OF A NEW CLASSROOM BUILDING WITH ASSOCIATED SITE WORK. UPON COMPLETION OF THE NEW BUILDING, TWO EXISTING BUILDINGS WILL BE DEMOLISHED AND REPLACED WITH COURTYARD IMPROVEMENTS. THIS SUBMITTAL IS PART OF A PHASED DEVELOPMENT DISCUSSED IN MORE DETAIL BELOW.
THE DRAINAGE CONCEPT FOR THIS PROJECT IS CONSISTENT WITH THE APPROVED MASTER DRAINAGE PLAN (N12/D009) DATED 09-28-2007. BASIN A WILL CONTINUE TO FREE DISCHARGE TO THE ADJACENT CITY STREETS. BASIN B WILL DRAIN TO AN EXISTING ONSITE PRIVATE RETENTION POND SIZED FOR THE V-10 DAY RUNOFF VOLUME.
THIS SUBMITTAL IS MADE IN SUPPORT OF BUILDING PERMIT APPROVAL WITHIN THE JURISDICTION OF THE CITY OF ALBUQUERQUE.

II. PROJECT DESCRIPTION

AS SHOWN BY THE VICINITY MAP, THE SCHOOL SITE IS LOCATED AT THE SOUTHWEST CORNER OF THE INTERSECTION OF MOUNTAIN AND MONTOYA ROADS NW. THE SITE IS DEVELOPED AS AN APS ELEMENTARY SCHOOL. THE SURROUNDING AREA IS ALSO DEVELOPED, MAINLY SINGLE FAMILY RESIDENTIAL, MAKING THIS A MODIFICATION TO AN EXISTING SITE WITHIN AN INFILL AREA. THE CURRENT LEGAL DESCRIPTION IS UNPLATTED LANDS OF THE ALBUQUERQUE PUBLIC SCHOOLS KNOWN AS REGINALD CHAVEZ ELEMENTARY SCHOOL. AS SHOWN BY PANEL 331 OF 825 OF THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAPS PUBLISHED BY FEMA FOR BERNALILLO COUNTY, NEW MEXICO, REVISED AUGUST 16, 2012, THIS SITE DOES NOT LIE WITHIN A DESIGNATED FLOOD HAZARD ZONE. FURTHER REVIEW OF THESE MAPS INDICATES THAT THIS SITE DOES NOT CONTRIBUTE RUNOFF TO A DOWNSTREAM DESIGNATED FLOOD HAZARD ZONE. THE PANEL ALSO IDENTIFIES THAT THE "1% ANNUAL CHANCE OR GREATER FLOOD HAZARD BY A LEVEE SYSTEM OVERTOPPING OR FAILURE OF ANY LEVEE SYSTEM IS POSSIBLE."

III. BACKGROUND DOCUMENTS

THE PREPARATION OF THIS PLAN RELIED UPON THE FOLLOWING DOCUMENTS AND ACTIVITIES:

1. PREDESIGN CONFERENCE RECAP DATED 03-04-2014 CONDUCTED WITH HIGH MESA CONSULTING GROUP. THE RECAP ALLOWED FOR THE CONTINUATION OF FREE DISCHARGE OF DEVELOPED RUNOFF FROM BASIN 'A' TO THE PUBLIC RIGHT-OF-WAY AND MODIFICATIONS TO THE BASIN 'B' POND SHALL MAINTAIN EXISTING VOLUME (V-10 DAY) PLUS ANY INCREASE IN RUNOFF ASSOCIATED WITH THE PROPOSED BUILDING PERMIT IMPROVEMENTS.
2. TOPOGRAPHIC SURVEY PREPARED BY HIGH MESA CONSULTING GROUP (NMPS 11184) DATED 11-07-2013. THIS REFERENCED SURVEY PROVIDES THE BASIS FOR THE EXISTING CONDITIONS OF THE PROJECT SITE.
3. MASTER DRAINAGE PLAN (MDP) FOR REGINALD CHAVEZ ELEMENTARY SCHOOL PREPARED BY HIGH MESA CONSULTING GROUP (NMPE 8547) DATED 09-28-2007. THE MDP ESTABLISHED THE CONCEPT OF FREE DISCHARGE FROM BASIN 'A' TO THE ADJACENT CITY STREETS COMBINED WITH THE ONSITE RETENTION OF RUNOFF FOR BASIN 'B.' THE 2007 MDP ALSO ESTABLISHED THE EXISTING BASIN B RETENTION POND VOLUME IN THE EXISTING CONDITION.
4. CONSTRUCTION PLANS FOR REGINALD CHAVEZ ELEMENTARY SCHOOL PLAYGROUND AND DRAINAGE MODIFICATIONS PREPARED BY HIGH MESA CONSULTING GROUP (NMPE 8547) DATED 09-10-2008 AND CERTIFIED 04-24-2009; OF THE FOUR (4) TASKS IDENTIFIED BY THESE REFERENCE CONSTRUCTION PLANS, TASKS 1 AND 2 ARE COMPLETED. TASK 3 LIES WITHIN THE FOOTPRINT OF THE NEW BUILDING ADDITION PROPOSED BY THIS SUBMITTAL AND AS SUCH IS NO LONGER APPLICABLE. THE COMPLETION OF TASKS 1 AND 2 WITH THE ASSOCIATED ENGINEER'S DRAINAGE CERTIFICATION INDICATES THAT THERE ARE NO OUTSTANDING DRAINAGE REQUIREMENTS FOR THIS SITE.
5. CONSTRUCTION PLANS FOR REGINALD CHAVEZ PORTABLE CLASSROOM RELOCATIONS PREPARED BY HIGH MESA CONSULTING GROUP (NMPE 8547) DATED 08-04-2014. THE REFERENCED PLANS DEFINE THE FIRST PHASE OF THIS PHASED PROJECT. IN THE FIRST PHASE, THE EXISTING PORTABLE CLASSROOM BUILDINGS WILL BE REMOVED AND RELOCATED IN ADVANCE OF THE PERMANENT BUILDING PROJECT. THE DEMOLITION OF THE EXISTING IMPROVEMENTS WITHIN THE FOOTPRINT OF THE NEW BUILDING WILL BE UNDERTAKEN IN PHASE 1. PHASE 1 WILL ALSO TEMPORARILY RELOCATE THE APS PORTABLE CLASSROOM BUILDINGS. THE YDI PORTABLE BUILDING WILL BE RELOCATED BY SEPARATE PERMIT BY OTHERS (NOT APS) CONCURRENT WITH THE FIRST PHASE OF WORK. THIS PLAN IS APPROVED FOR GRADING, PAVING AND BUILDING PERMIT. A SUPPORTING EROSION AND SEDIMENT CONTROL PLAN (ESCP) IS CURRENTLY UNDER REVIEW.

IV. EXISTING CONDITIONS

THIS SITE IS DEVELOPED AS AN ELEMENTARY SCHOOL OWNED, OPERATED, AND MAINTAINED BY APS. THE SCHOOL SITE CONSISTS OF PERMANENT AND PORTABLE CLASSROOM BUILDINGS, PAVED PARKING AREAS AND WALKWAYS, LANDSCAPING, TURF GRASS FIELD AND OTHER SITE IMPROVEMENTS APPLICABLE TO AN ELEMENTARY SCHOOL SITE. THE SITE IS CHARACTERIZED BY TWO DRAINAGE BASINS, BASINS A AND B. BASIN A DRAINS NORTH TO MOUNTAIN ROAD NW AND EAST TO MONTOYA ROAD NW WHILE BASIN B DRAINS SOUTH AND WEST TO AN ONSITE PRIVATE RETENTION POND AT THE SOUTHWEST CORNER OF THE SITE.

- BASIN A GENERALLY CONSISTS OF THE NORTH PORTION OF THE MAIN OFFICE AND CLASSROOM BUILDINGS (NO. 100 & 200), NORTHWEST AND NORTHEAST PAVED PARKING LOTS, PAVED BUS DROP-OFF LANE, AND MINOR AREAS OF BARE SOIL. THE RUNOFF GENERATED BY THIS BASIN FREELY DISCHARGES NORTH TO MOUNTAIN ROAD NW AND EAST TO MONTOYA ROAD NW, BOTH FULLY DEVELOPED PUBLIC STREETS WITH CURB AND GUTTER AND PERMANENT PAVING. MOUNTAIN ROAD NW DRAINS TO THE EAST AND WEST DUE TO AN EXISTING HIGHPOINT IN THE STREET PROFILE. MOUNTAIN ROAD NW IS SERVED BY A PUBLIC STORM DRAIN SYSTEM WITH STREET RUNOFF COLLECTED VIA CURB INLETS. MONTOYA ROAD NW DRAINS TO THE NORTH, WHERE RUNOFF IS ALSO COLLECTED VIA CURB INLETS INTO THE PUBLIC STORM DRAIN SYSTEM.
- BASIN B IS COMPRISED OF THE CENTRAL AND SOUTH HALF OF THE SITE CONSISTING OF THE SOUTH PORTION OF THE MAIN OFFICE AND CLASSROOM BUILDINGS (NO. 200, 300, & 400), PORTABLE BUILDINGS, PAVED WALKWAYS, LANDSCAPING, PLAY AREAS, BARE SOIL PLAY AREAS AND A TURF GRASS FIELD AT THE SOUTHWEST CORNER OF THE SITE. THIS PORTION OF THE SITE GENERALLY DRAINS TO THE SOUTH AND WEST WHERE RUNOFF IS CAPTURED WITHIN AN EXISTING ONSITE PRIVATE RETENTION POND AT THE SOUTHWEST CORNER OF THE SITE. THE EXISTING POND RETAINS IN EXCESS OF THE V-10 DAY RUNOFF VOLUME.

AS ESTABLISHED BY THE 2007 MDP, THERE ARE NEGLIGIBLE OFFSITE FLOWS DISCHARGING ONTO THE SITE FROM THE ADJACENT RESIDENTIAL LOTS TO THE SOUTH AND EAST OF THE SCHOOL SITE.

V. DEVELOPED CONDITIONS

THE PROPOSED CONSTRUCTION CONSISTS OF A NEW CLASSROOM BUILDING WITH ASSOCIATED SITE WORK IN BOTH DRAINAGE BASINS A AND B. UPON COMPLETION OF THE NEW CLASSROOM BUILDING, TWO SMALLER EXISTING CLASSROOM BUILDINGS, 300 & 400, WILL BE REMOVED (DEMOLISHED). IN ADDITION TO SITE WORK ASSOCIATED WITH THE NEW BUILDING, SITE WORK WILL ALSO INCLUDE REGRADING AND LANDSCAPING THE EXISTING POND IN BASIN B. THE MAJORITY OF THE PROPOSED CONSTRUCTION WILL OCCUR IN BASIN B.

THE PROPOSED WORK WITHIN BASIN A WILL BE LIMITED. THE NORTH END OF THE NEW BUILDING, THE LIBRARY, WILL GENERATE ROOF RUNOFF THAT WILL DISCHARGE INTO THE NORTHWEST PARKING LOT WHERE IT WILL BE ROUTED THROUGH AN EXISTING WATER HARVESTING POND PRIOR TO DISCHARGE NORTH INTO MOUNTAIN ROAD NW. THIS PORTION OF THE PROJECT IS NOT ANTICIPATED TO GENERATE A SIGNIFICANT INCREASE IN THE PEAK DISCHARGE OF RUNOFF TO MOUNTAIN ROAD NW. IN ADDITION, THE RUNOFF WILL ROUTE THROUGH AN EXISTING WATER HARVESTING POND.

THE MAJORITY OF THE PROPOSED CONSTRUCTION WILL OCCUR WITHIN BASIN B CONSISTING OF THE CLASSROOM PORTION OF THE NEW BUILDING, FIRE TRUCK ACCESS, COURTYARD AND PLAYGROUND IMPROVEMENTS, RELOCATED BASKETBALL COURTS, AND MODIFICATIONS TO THE EXISTING POND. THE SOUTH END OF THE NEW CLASSROOM WING ENCROACHES INTO THE V-10 DAY POND LIMITS. IN RESPONSE, A PORTION OF THE EXISTING POND WILL BE REGRADED BY FILL. RUNOFF FROM THE EXISTING ONSITE PRIVATE STORM DRAIN WILL BE PIPED AROUND THE SOUTH END OF THE NEW BUILDING TO THE WEST END OF THE EXISTING POND. THE WEST END OF THE EXISTING POND WILL BE DEEPENED TO COMPENSATE FOR THE DISPLACED VOLUMES AND TO ENSURE THE V-10 DAY RUNOFF REMAINS CONTAINED ON THE SITE. ROOF RUNOFF FROM THE NEW CLASSROOM WING WILL BE COLLECTED VIA ROOF DRAINS AND DIRECTED VIA PRIVATE STORM DRAIN TO THE ONSITE PRIVATE RETENTION POND.

UPON COMPLETION OF THE NEW BUILDING TWO EXISTING CLASSROOM BUILDINGS, SOUTH OF THE MAIN OFFICE & CLASSROOM BUILDING, WILL BE REMOVED. THE OLD BUILDING FOOTPRINTS WILL BE REPLACED WITH TREE WELLS AND PERVIOUS PAVING. THE BASKETBALL COURTS WILL ALSO BE RELOCATED AND RECONSTRUCTED AT THE EAST EDGE OF THE SCHOOL SITE WITH THE EXISTING PLAYGROUND. THIS AREA WILL ALSO SURFACE DRAIN TO THE ONSITE PRIVATE RETENTION POND. IN ADDITION TO SITE LANDSCAPING, THE DEVELOPED POND WILL BE LANDSCAPED. IT WILL ALSO BE FENCED AS IT WILL BE DEEPER THAN 18 INCHES.

THE NEGLIGIBLE OFFSITE FLOWS ENTERING THE SITE FROM THE ADJACENT RESIDENTIAL PROPERTIES WILL NOT BE BLOCKED AND WILL CONTINUE TO BE ACCEPTED AND CONVEYED THROUGH THE SITE AS IN THE EXISTING CONDITION.

VI. PHASING

THIS PROJECT WILL BE CONSTRUCTED IN PHASES AS FOLLOWS:

PHASE 1: REMOVE AND RELOCATE EXISTING PORTABLE CLASSROOM BUILDINGS INCLUDING THE DEMOLITION OF THE EXISTING IMPROVEMENTS WITHIN THE FOOTPRINT OF THE PROPOSED PERMANENT BUILDING. THE APS PORTABLE CLASSROOM BUILDINGS WILL TEMPORARILY BE LOCATED TO THE IMMEDIATE WEST OF THE NEW BUILDING IN THE PROXIMITY OF THE EXISTING BASKETBALL COURTS.

PHASE 2A: CONSTRUCT NEW PERMANENT CLASSROOM BUILDING.

PHASE 2B: DEMOLISH EXISTING BUILDINGS 300 AND 400 AND CONSTRUCT NEW COURTYARD IMPROVEMENTS

PHASE 2C: REMOVE EXISTING APS PORTABLE CLASSROOM BUILDINGS FROM SITE.

PHASE 2D: CONSTRUCT NEW PLAYGROUND IMPROVEMENTS FOR THE YDI PROGRAM (PORTABLE TO REMAIN) AND THE APS KINDERGARTEN CLASSROOMS (NEW BUILDING)

PHASE 3: RELOCATE PORTABLE BUILDINGS FOR AFTER SCHOOL PROGRAMS TO EAST SIDE OF CAMPUS. THIS WILL COVERED BY SEPARATE PERMIT AND HENCE SEPARATE SUBMITTAL.

VI. GRADING PLAN

THE GRADING PLAN SHOWS THE 1.) EXISTING AND PROPOSED GRADES INDICATED BY SPOT ELEVATIONS AND CONTOURS AT 1'-0" INTERVALS, 2.) THE LIMIT OF THE EXISTING AND PROPOSED IMPROVEMENTS, AND 3.) CONTINUITY BETWEEN EXISTING AND PROPOSED GRADES. AS SHOWN BY THIS PLAN, THE LIMITS OF BASIN A WILL DECREASE SLIGHTLY IN RESPONSE TO THE NEW CLASSROOM BUILDING ROOF DRAINAGE. THE MAJORITY OF THE SITE AND THIS PROJECT LIES WITHIN BASIN B. THE DEVELOPED RUNOFF IN BASIN B ASSOCIATED WITH THE NEW CLASSROOM BUILDING, FIRE LANE DRIVE, PERVIOUS PAVING IMPROVEMENTS, RELOCATED AND RECONSTRUCTED BASKETBALL COURTS WILL CONTINUE TO DRAIN TO AND BE CONTAINED WITHIN THE EXISTING RETENTION POND AT THE SOUTHWEST CORNER OF THE SITE.

VII. EROSION & SEDIMENT CONTROL AND LOW IMPACT DEVELOPMENT

DURING THE DEMOLITION, BUILDING, AND SITE CONSTRUCTION PHASES, BEST MANAGEMENT PRACTICES (BMPS) WILL BE IMPLEMENTED AND MAINTAINED FOR THE ENTIRE SITE UNTIL FINAL STABILIZATION MEASURES ARE INSTALLED. PREVENTION OF SEDIMENT DISCHARGE INTO THE PUBLIC RIGHT OF WAY AND/OR DOWNSTREAM INTO THE EXISTING STORM DRAIN SYSTEM IS REQUIRED BY THE CONSTRUCTION GENERAL PERMIT. A COMBINATION OF COMMON BMPS WILL PREVENT SEDIMENT DISCHARGE FROM THE SITE; SUCH AS: STABILIZED CONSTRUCTION ENTRANCE, STRAW WATTLES, PERIMETER SILT FENCE, AND SEDIMENT DETENTION PONDING. PERMANENT STABILIZATION WILL BE ACHIEVED BY MEANS OF PERVIOUS AND IMPERVIOUS PAVING, NEW CLASSROOM BUILDING, LANDSCAPING (GRAVEL MULCH & PLANTINGS), AND SEDIMENT DETENTION PONDING WITHIN ONSITE PONDS. BASIN A INCLUDES AN EXISTING WATER HARVESTING AREA THAT WILL REMAIN. BASIN B INCLUDES AN ONSITE PRIVATE RETENTION POND THAT WILL BE DEEPENED AND IMPROVED IN CONJUNCTION WITH THIS PROJECT.

LOW IMPACT DEVELOPMENT IN BASIN A WILL BE ACHIEVED DUE TO THE MINOR DEVELOPMENT IT WILL RECEIVE. A SMALL VOLUME OF ROOF RUNOFF WILL DISCHARGE TO AN EXISTING SIDEWALK CULVERT AND COLLECT INTO AN EXISTING WATER HARVESTING POND. THE MAJORITY OF THE SUSPENDED SOLIDS WILL SETTLE BEFORE DISCHARGING INTO MOUNTAIN ROAD NW. THE LOW IMPACT NATURE OF BASIN B WILL BE MAINTAINED WHERE RUNOFF COLLECTS AND IS RETAINED IN THE EXISTING RETENTION POND. NEW PERVIOUS PAVING AND NEW LANDSCAPING WILL ALLOW RAINFALL TO INFILTRATE WITHIN THE SITE WHILE THE REMAINING RUNOFF WILL CONTINUE TO BE COLLECTED AND RETAINED WITHIN THE MODIFIED RETENTION POND.

VIII. CALCULATIONS

THE CALCULATIONS CONTAINED HEREON ANALYZE THE EXISTING AND DEVELOPED CONDITIONS FOR THE 100-YEAR, 6-HOUR RAINFALL EVENT. THE PROCEDURE FOR 40 ACRE AND SMALLER BASINS, AS SET FORTH IN THE REVISION OF SECTION 22.2, HYDROLOGY OF THE DEVELOPMENT PROCESS MANUAL, VOLUME 2, DESIGN CRITERIA, DATED JANUARY 1993, HAS BEEN USED TO QUANTIFY THE PEAK RATE OF DISCHARGE AND VOLUME OF RUNOFF GENERATED. AS DEMONSTRATED BY THESE CALCULATIONS, THE PROPOSED IMPROVEMENTS WILL RESULT IN AN INCREASE IN DEVELOPED RUNOFF GENERATED BY BASIN A, AND AN INCREASE IN THE DEVELOPED RUNOFF GENERATED BY BASIN B OF THE REGINALD CHAVEZ SCHOOL SITE. IN ADDITION, THE FIRST FLUSH WILL BE 100% RETAINED ONSITE IN THE DEVELOPED REGINALD CHAVEZ SCHOOL SITE WITHIN THEIR RESPECTIVE BASINS A & B. THE VOLUME OF THE EXISTING WATER HARVESTING POND IN BASIN A PROVIDES ADEQUATE CAPACITY TO RETAIN THE FIRST FLUSH RUNOFF GENERATED BY THE DEVELOPED BASIN A. SIMILARLY, THE REGRADED RETENTION POND WITHIN BASIN B WILL PROVIDE MORE THAN ENOUGH CAPACITY REQUIRED TO RETAIN THE FIRST FLUSH RUNOFF.

IX. CONCLUSIONS

THE FOLLOWING CONCLUSIONS HAVE BEEN ESTABLISHED AS A RESULT OF THE EVALUATIONS CONTAINED HEREIN:

1. THE PROPOSED IMPROVEMENTS REPRESENT THE MODIFICATION OF AN EXISTING SITE WITHIN AN INFILL AREA.
2. THE PROPOSED IMPROVEMENTS WILL MAINTAIN AND NOT ALTER THE EXISTING DRAINAGE PATTERNS OF THE SITE AND BE CONSISTENT WITH THE APPROVED MASTER DRAINAGE PLAN.
3. THE PROPOSED IMPROVEMENTS WILL COMPLEMENT THE PORTABLE CLASSROOM RELOCATION PROJECT THAT WILL PRECEDE THE BUILDING PERMIT FOR THE PERMANENT BUILDING CONSTRUCTION AND IMPROVEMENTS PROPOSED HEREIN.
4. THE FREE DISCHARGE OF DEVELOPED RUNOFF FROM BASIN A TO THE ADJACENT CITY STREETS IS CONSISTENT WITH THE MASTER DRAINAGE PLAN FOR THE SCHOOL SITE.
5. THE PROPOSED IMPROVEMENTS WILL HAVE A MINOR INCREASE IN THE DEVELOPED RUNOFF, FREELY DISCHARGING TO MOUNTAIN ROAD NW, GENERATED BY BASIN A. THIS RUNOFF, HOWEVER, WILL BE ROUTED THROUGH AN EXISTING WATER HARVESTING AREA THAT WILL MITIGATE THE MINOR INCREASE.
6. THE PROPOSED IMPROVEMENTS WILL RESULT IN A MINOR INCREASE IN THE DEVELOPED RUNOFF GENERATED FOR BASIN B; THIS INCREASE WILL BE MITIGATED VIA THE INCREASED STORAGE CAPACITY OF THE ONSITE RETENTION POND.
7. THE PROPOSED IMPROVEMENTS WILL ENCROACH UPON THE EXISTING ONSITE PRIVATE RETENTION POND. CAPACITY OF THE POND, HOWEVER, WILL BE PRESERVED BY REGRADING AND DEEPENING THE POND TO PROVIDE FOR ADEQUATE STORAGE VOLUME. THE DEEPER PORTIONS OF THE EXISTING POND WILL BE FENCED TO RESTRICT PUBLIC ACCESS.
8. THE V-10 DAY RUNOFF VOLUME WILL CONTINUE TO BE CONTAINED ON SITE IN BASIN B, CONSISTENT WITH THE MASTER DRAINAGE PLAN.
9. A GRAVEL INFILTRATION TRENCH WILL BE CONSTRUCTED AT THE BOTTOM OF THE ONSITE PRIVATE RETENTION POND IN BASIN B TO PROMOTE INFILTRATION.
10. THE PROPOSED IMPROVEMENTS WILL NOT ADVERSELY IMPACT DOWNSTREAM PROPERTIES OR DOWNSTREAM DRAINAGE CONDITIONS.
11. THE PROPOSED IMPROVEMENTS WILL NOT BLOCK OFFSITE FLOWS.
12. THE FIRST FLUSH RUNOFF IN THE DEVELOPED PORTIONS OF BASINS A & B WILL BE CAPTURED AND MANAGED.

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CALCULATIONS

I. SITE CHARACTERISTICS

A. PRECIPITATION ZONE = 2

B. $P_{100,\,6\,HR} = P_{360\,MIN} =$ 2.35 IN

$P_{100,\,10DAY} = P_{10\,DAY} =$ 3.95 IN

$P_{1440\,MIN} =$ 2.75 IN

C. LAND TREATMENTS & AREAS

1. TOTAL PROJECT AREA (A_T) = 390,300 SF (8.96 AC)

a. EXISTING LAND TREATMENT (FROM 2007 APPROVED MASTER DRAINAGE PLAN)

i. BASIN 'A'

TREATMENT	AREA (SF/AC)	%
A	0 / 0.00	
B	5,982 / 0.14	6
C	17,780 / 0.41	16
D	86,880 / 1.99	78
TOTAL	110,642 / 2.54	100

ii. BASIN 'B'

TREATMENT	AREA (SF/AC)	%
A	0 / 0.00	
B	61,420 / 1.41	22
C	135,472 / 3.11	48
D	82,764 / 1.90	30
TOTAL	279,656 / 6.42	100

b. DEVELOPED LAND TREATMENT

i. BASIN 'A'

TREATMENT	AREA (SF/AC)	%
A	0 / 0.00	
B	0 / 0.00	
C	18,644 / 0.43	18
D	85,480 / 1.96	82
TOTAL	104,124 / 2.39	100

ii. BASIN 'B'

TREATMENT	AREA (SF/AC)	%
A	0 / 0.00	
B	61,420 / 1.41	22
C	115,990 / 2.66	41
D	106,670 / 2.45	38
TOTAL	284,080 / 6.52	100

II. HYDROLOGY

A. EXISTING CONDITION (FROM 2007 APPROVED MDP)

1. BASIN 'A'

a. VOLUME

$E_W = (E_AA_A+E_BA_B+E_CA_C+E_DA_D)/A_T$

$E_W =$ (0.53*0.00) + (0.78*0.14)+ (1.13*0.41)+ (2.12*1.99)/2.54 = 1.89 IN

$V_{100,6\,HR} = (E_W/12)A_T =$ (1.89/12)2.54 = 0.4000 AC-FT = 17,430 CF

b. PEAK DISCHARGE

$Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$

$Q_P = Q_{100} =$ (1.56*0.00) + (2.28*0.14) + (3.14*0.41) + (4.70*1.99) = 11.0 CFS

c. WATER HARVESTING (AVERAGE END AREA METHOD)

ELEV	AREA (SF)	VOL (CF)	ΣVOL (CF)
4956.7	530		
		190	190
4957	750		

V_{WH} = 190 CF = 0.0043 AC-FT

2. BASIN 'B'

a. VOLUME

$E_W = (E_AA_A+E_BA_B+E_CA_C+E_DA_D)/A_T$

$E_W =$ (0.53*0.00) + (0.78*1.41)+ (1.13*3.11)+ (2.12*1.90)/6.42 = 1.35 IN

$V_{100,6\,HR} = (E_W/12)A_T =$ (1.35/12)6.42 = 0.7223 AC-FT = 31,460 CF

$V_{10\text{-}DAY} = V_{100,6\,HR} + A_D(P_{10} - P_{360})/12$

$V_{10\text{-}DAY} =$ 0.7223 + 1.90 * (3.95 - 2.35)/12 = 0.9756 AC-FT = 42,500 CF

b. PEAK DISCHARGE

$Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$

$Q_P = Q_{100} =$ (1.56*0.00) + (2.28*1.41) + (3.14*3.11) + (4.70*1.90) = 21.9 CFS

c. RETENTION POND (AVERAGE END AREA METHOD)

ELEV	AREA (SF)	VOL (CF)	ΣVOL (CF)
4953	1,180		
		4,775	4775
4954	8,370		
		13,925	18700
4955	19,480		
		36,510	55,210
4956	53,540		

$V_{@4956}$ = 55,210 CF = 1.27 AC-FT > $V_{10\text{-}DAY}$ = 42,500 CF ∴ $V_{10\text{-}DAY}$ WSL BETWEEN 4955 AND 4956; LET $V_{10\text{-}DAY}$ WSL = 4955.5

B. DEVELOPED CONDITION

1. BASIN 'A'

a. VOLUME

$E_W = (E_AA_A+E_BA_B+E_CA_C+E_DA_D)/A_T$

$E_W =$ (0.53*0.00) + (0.78*0.00)+ (1.13*0.43)+ (2.12*1.96)/2.39 = 1.94 IN

$V_{100,6\,HR} = (E_W/12)A_T =$ (1.94/12)2.39 = 0.3864 AC-FT = 16,830 CF

b. PEAK DISCHARGE

$Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$

$Q_P = Q_{100} =$ (1.56*0.00) + (2.28*0.00) + (3.14*0.43) + (4.70*1.96) = 10.6 CFS

c. WATER HARVESTING - NO CHANGE

d. FIRST FLUSH (REQ'D FOR INCREASED IMPERVIOUS AREA)

$E_W = (E_{FF}A_D)/A_D$

E_{FF} = 0.44 IN

$A_D = A_{D,\,DEV} - A_{D,EXIST}$ = 1.96 AC - 1.99 AC

A_D = -0.03 AC = DECREASE IN IMPERVIOUS AREA

THEREFORE; NO FIRST FLUSH CALCULATIONS ARE REQ'D

2. BASIN 'B'

a. VOLUME

$E_W = (E_AA_A+E_BA_B+E_CA_C+E_DA_D)/A_T$

$E_W =$ (0.53*0.00) + (0.78*1.41) + (1.13*2.66)+ (2.12*2.45)/6.52 = 1.43 IN

$V_{100,6\,HR} = (E_W/12)A_T =$ (1.43/12)6.52 = 0.7772 AC-FT = 33,850 CF

$V_{10\text{-}DAY} = V_{100,\,6HR} + A_D(P_{10} - P_{360})/12$

$V_{10\text{-}DAY} =$ 0.7772 + 2.45 * (3.95 - 2.35)/12 = 1.1037 AC-FT = 48,080 CF

b. PEAK DISCHARGE

$Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$

$Q_P = Q_{100} =$ (1.56*0.00) + (2.28*1.41) + (3.14*2.66) + (4.70*2.45) = 23.1 CFS

c. RETENTION POND (AVERAGE END AREA METHOD)

ELEV	AREA (SF)	VOL (CF)	ΣVOL (CF)
4951	2,560		
		3,350	3,350
4952	4,140		
		5,030	8,380
4953	5,920		
		7,910	16,290
4954	9,900		
		13,125	29,415
4955	16,350		
		27,825	57,240
4956	39,300		

$V_{@4956}$ = 57,240 CF >> $V_{10\text{-}DAY}$ = 46,730 CF ∴ OK

d. FIRST FLUSH (REQ'D FOR INCREASED IMPERVIOUS AREA)

$E_W = (E_{FF}A_D)/A_D$

E_{FF} = 0.44 IN

$A_D = A_{D,\,DEV} - A_{D,EXIST}$ = 2.45 AC - 1.90 AC

A_D = 0.55 AC = INCREASE IN IMPERVIOUS AREA

$E_W =$ (0.44*0.55)/0.55 = 0.44 IN

$V_{FF} = (E_W/12)A_T =$ (0.44/12)0.55 = 0.0202 AC-FT = 880 CF

V_{FF} = 880 CF < $V_{@4956}$ = 57,240 CF ∴ OK

C. COMPARISON

1. BASIN 'A'

a. VOLUME ($V_{DEV} - V_{EXIST} - V_{WH}$)

$\Delta V_{100,\,6\,HR}$ = 16,830 - 17,430 - 190= -790 CF (DECREASE)

b. PEAK DISCHARGE ($P_{DEV} - P_{EXIST}$)

ΔQ_{100} = 10.6 - 11.0 = -0.4 CFS (DECREASE)

c. FIRST FLUSH (V_{FF} vs V_{WH})

NO FIRST FLUSH CALCULATIONS AS IMPERVIOUS AREA IN BASIN DECREASED

2. BASIN 'B'

a. Δ VOLUME GENERATED ($V_{DEV} - V_{EXIST}$)

$\Delta V_{100,\,6\,HR}$ = 33,850 - 31,460 = 2,390 CF (INCREASE)

$\Delta V_{10\,DAY}$ = 48,080 - 42,500 = 5,580 CF (INCREASE)

b. DEVELOPED VOLUME GENERATED vs PONDING (RETENTION @ WSL = 4956)

$V_{DEV\,100,\,6HR}$ = 33,850 CF < $V_{@4956}$ = 57,240 CF ∴ OK

$V_{DEV\,10\,DAY}$ = 48,080 CF < $V_{@4956}$ = 57,240 CF ∴ OK

c. PEAK DISCHARGE ($P_{DEV} - P_{EXIST}$)

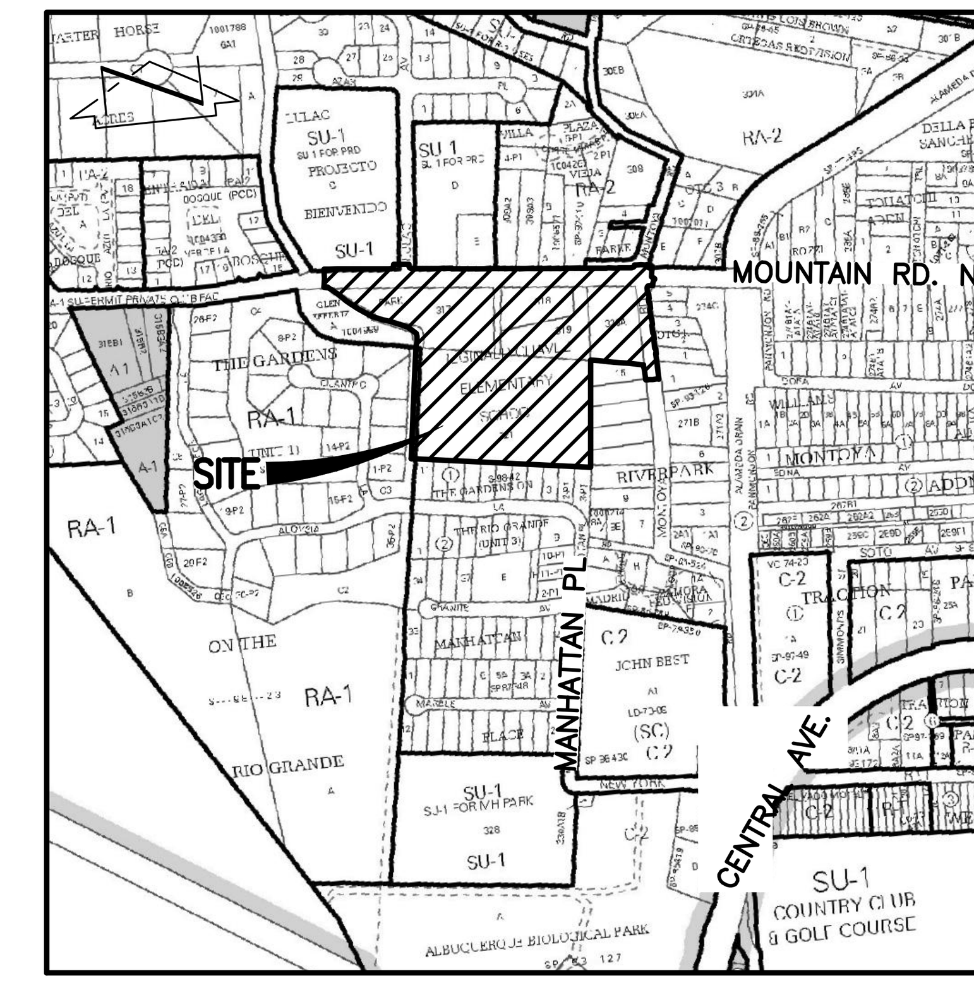
ΔQ_{100} = 23.1 - 21.9 = 1.2 CFS (INCREASE)

d. FIRST FLUSH (V_{FF} vs $V_{@4956}$)

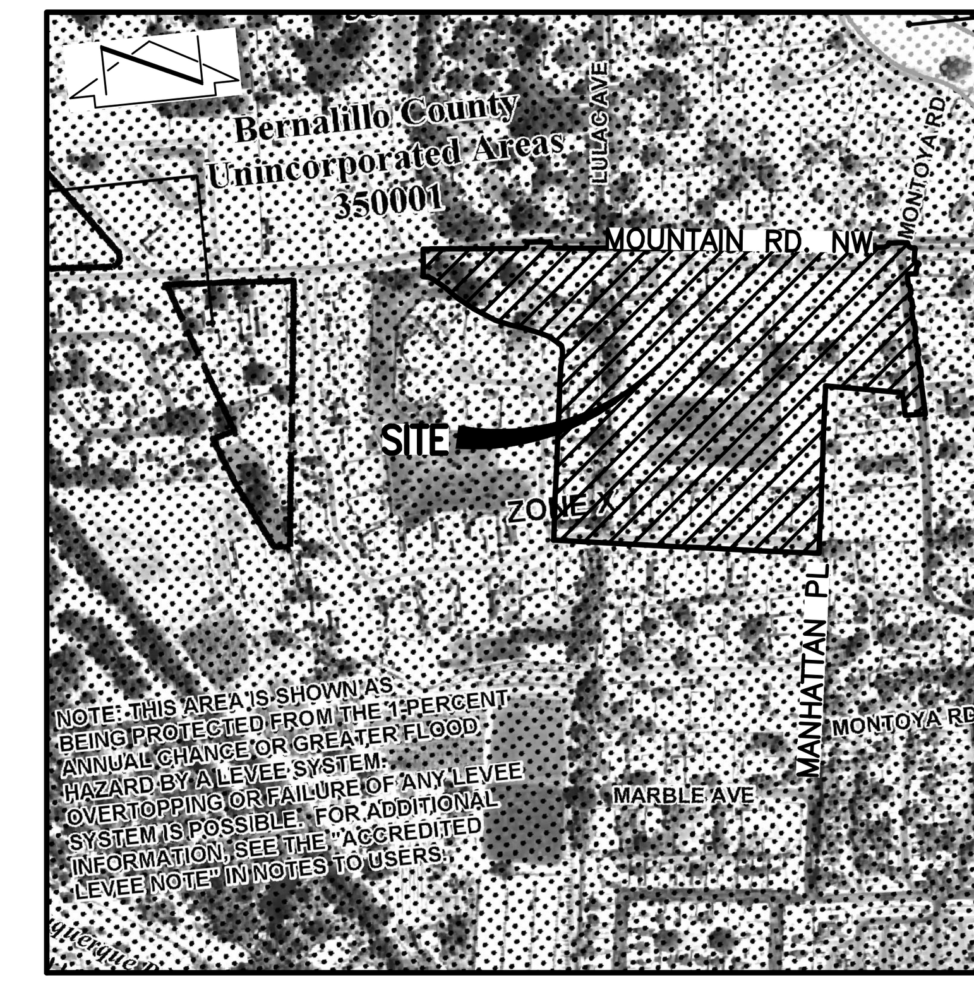
V_{FF} = 880 CF < $V_{@4956}$ = 57,240 CF ∴ FIRST FLUSH RETAINED IN RETENTION POND

LEGEND

4SQ	PAINTED FOUR SQUARE	OHE(1)	OVERHEAD ELECTRIC (# OF LINES)
AR	ASPHALT RAMP	OHM	OVERHEAD UTILITY MAST
ARD	ASPHALT RUNDOWN	OHW	OVERHEAD WALL
ASPH	ASPHALT	OHWL	OVERHEAD WATER LINE
ASV	ANTI-SIPHON VALVE	PB	CONCRETE WHEEL STOP
BBG	BASKETBALL GOAL	PE	PLAYGROUND EQUIPMENT
BOH	BUILDING OVERHANG	PM	UTILITY PAINT MARK
BR	BICYCLE RACK	PS	PAINTED PARKING STRIPE
BS	ATHLETIC BACKSTOP	PT	PICNIC TABLE
C&G	CURB AND GUTTER	PVC	POLYVINYL CHLORIDE PIPE
C/PM	COMMUNICATION LINE BY PAINT MARK	RCP	REINFORCED CONCRETE PIPE
CCAB	COMMUNICATION CABINET	RD	ROOF DRAIN
CCND	COMMUNICATION CONDUIT	RD/UG	ROOF DRAIN TO UNDERGROUND
CCW	CONCRETE CONTAINMENT WALL	RE	REFUSE ENCLOSURE
CDP	CONCRETE DRIVE PAD	ROW	ROW OF CONCRETE WHEEL STOPS
CF	LANDSCAPING CRUSHER FINES	RR	RIP-RAP
CHC	CONCRETE HEADER CURB	RRT	LANDSCAPING RAILROAD TIES
CHW	CONCRETE HEAD WALL	SAS	SANITARY SEWER
CI	CAST IRON PIPE	SAS/PM	SANITARY SEWER LINE BY PAINT MARK
CLD	CENTERLINE DOOR	SB	PAINTED STOP BAR
CLDD	CENTERLINE DOUBLE DOOR	SC	STEEL COVER
CLF	CHAIN LINK FENCE	SD	STORM DRAIN
CMR	COMMUNICATION RISER	SD/FD	STORM DRAIN/FRENCH DRAIN
CMU	CONCRETE BLOCK WALL	SD/PM	STORM DRAIN LINE BY PAINT MARK
CND	ELECTRIC CONDUIT	SDI	STORM DRAIN INLET
CO	CLEANOUT	SDP	SERVICE DROP POLE
CONC	CONCRETE	SG	ELECTRIC SWITCH GEAR
COP	CURB OPENING	SGP	STEEL GUARD POST
CP	CONCRETE PIPE	SIG	TRAFFIC SIGNAL (FLASHING BEACONS)
CPB	COMMUNICATION PULLBOX	STD	STANDARD
CPN	COMMUNICATION PANEL	STW	STUCCO WALL
CPO	COMMUNICATION POLE	SW	CONCRETE SIDEWALK
CPW	CONCRETE PLANTER WALL	SWC	SIDEWALK CULVERT
CR	CONCRETE RAMP	SWS	PAINTED SOLID WHITE STRIPE
CRS	BUILDING CRAWL SPACE	TA	TOP OF ASPHALT
CRW	CONCRETE RETAINING WALL	TC	TOP OF CURB
CS	CONCRETE STEPS	TCO	TOP OF CONCRETE
CSP	CONCRETE SPLASH PAD	TDSW	CONCRETE TURNDOWN SIDEWALK
CSW	CONCRETE SIDEWALK	TG	TOP OF GRATE
CVC	COVERED CONCRETE	TRN	ELECTRIC TRANSFORMER
CW	CONCRETE WALL	TS	TRAFFIC SIGN
DCO	DOUBLE CLEANOUT	TW	TOP OF WALL
DPG	DOUBLE PIPE GATE	TYP	TYPICAL
DUMP	CONCRETE DUMPSTER PAD	VCP	VITRIFIED CLAY PIPE
DYS	PAINTED DOUBLE YELLOW STRIPE	VG	CONCRETE VALLEY GUTTER
E/PM	ELECTRIC LINE BY PAINT MARK	VP	VENT PIPE
E/UNK	ELECTRIC LINE BY UNKNOWN SOURCE PAINT MARK	W/PM	WATER LINE BY PAINT MARK
EA	EDGE OF ASPHALT	WCR	CONCRETE WHEELCHAIR RAMP
ECAB	ELECTRIC CABINET	WFT	DRINKING FOUNTAIN
EM	ELECTRIC METER	WHB	WATER HOT BOX
EO	ELECTRIC OUTLET	WL	WATER LINE
EP	ELECTRIC PANEL	WL/FRD	WATER LINE FROM RECORD DRAWING
EPB	ELECTRIC PULLBOX	WL/UNK	WATER LINE PAINT MARK FROM UNKNOWN SOURCE
FH	FIRE HYDRANT	WMB	WATER METER BOX
FL	FLOWLINE	WP	WOOD POLE
FP	FLAG POLE	WPP	WOOD POWER POLE
FRD	FROM RECORD DRAWING	WPP/SL	WOOD POWER POLE WITH STREET LIGHT
G/PM	GAS LINE BY PAINT MARK	WS	WOOD SHED
GA	GUY WIRE ANCHOR	WVB	WATER VALVE BOX
GM	GAS METER	XW	PAINTED CROSSWALK
GP	GUARD POST	*	PAINTED UTILITY MARKER
GRM	GRATED RIM	0.5'ø	TREE TRUNK DIAMETER
GRT	GREASE TRAP	(symbol)	DECIDUOUS TREE
GS	GAS SERVICE	(symbol)	SMALL DECIDUOUS TREE
GT	GATE	(symbol)	SMALL GROUP OF TREES
GTS	GATE STOP POST	(symbol)	SMALL SHRUB
HCP	HANDICAPPED PARKING SIGN	(symbol)	SHRUB
HOP	PAINTED HOPSCOTCH	(symbol)	LANDSCAPING BOULDER
HW	HOT WATER LINE	(symbol)	TREE STUMP
HWR	HOT WATER RETURN LINE	(symbol)	HANDICAPPED PARKING SPACE
ICT	IRRIGATION CONTROL TIMER		
INV	PIPE INVERT		
IVB	IRRIGATION VALVE BOX		
KSW	KEYSTONE BLOCK WALL		
LSD	PLASTIC LANDSCAPE DIVIDER		
MBC	METAL BUILDING COLUMN		
MC/L	METER CAN WITH LINE		
MC/V	METER CAN WITH VALVE		
MH	MANHOLE		
MHR	METAL HAND RAIL		
MLN	METAL LANDING		
MLP	METAL LIGHT POLE ON CONCRETE BASE		
MNT	MOUNTABLE		
MR	METAL RAMP		
MS	METAL STEPS		
MTC	METAL TRASH CAN		
MTS	METAL STEPS		
OHC(1)	OVERHEAD COMMUNICATION (# OF LINES)		



D6 VICINITY MAP J-12
SCALE: 1" = 750'



C6 FIRM PANEL 331 of 825
SCALE: 1" = 500'
DATED: 08-16-2012

LEGAL DESCRIPTION

UNPLATTED LANDS OF ALBUQUERQUE PUBLIC SCHOOLS KNOWN AS REGINALD CHAVEZ ELEMENTARY SCHOOL.

BENCHMARKS

PROJECT BENCHMARK

ACS 3 1/4" ALUMINUM CAP STAMPED, "13-J12, 1989", RIVETED TO A PIPE 0.2' ABOVE GROUND, IN THE NORTHEAST QUADRANT OF THE INTERSECTION OF NEW YORK AVENUE N.W. AND CENTRAL AVENUE.
ELEVATION = 4955.431 FEET (NAVD 88)

TEMPORARY BENCHMARK #1 (T.B.M.)

A MAG NAIL W/WASHER IN THE CONCRETE SIDEWALK ON THE NORTH SIDE OF MOUNTAIN ROAD N.W., AS SHOWN ON SHEET C-102.
ELEVATION = 4957.53 FEET (NAVD 88)

TEMPORARY BENCHMARK #2 (T.B.M.)

A MAG NAIL W/WASHER IN THE CONCRETE SIDEWALK AT THE NORTHEAST QUADRANT OF THE INTERSECTION OF MOUNTAIN ROAD AND MONTOYA ROAD N.W., AS SHOWN ON SHEET C-102.
ELEVATION = 4957.17 FEET (NAVD 88)

TEMPORARY BENCHMARK #3 (T.B.M.)

A #5 REBAR W/CAP STAMPED "HMCG CONTROL NMPS 11184" AT THE EASTERN EDGE OF A GRASS FIELD, AS SHOWN ON SHEET C-103.
ELEVATION = 4957.44 FEET (NAVD 88)

HYDROLOGY FILE # J12/D009

△1

RECORD DRAWING
FOR CERTIFICATION, SEE SHEET C-103

2015.185.3
~~2013.061.1~~

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220 gold avenue sw albuquerque, nm 87102
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THIS DOCUMENT WAS ORIGINALLY ISSUED AND SEALED BY JEFFREY G. MORTENSEN NMPE #8547 ON 11-05-2014

J. GRAEME MEANS NEW MEXICO 13676 REGISTERED PROFESSIONAL ENGINEER
07-26-2016

REGINALD CHAVEZ ELEMENTARY SCHOOL
2700 Mountain Road NW
Albuquerque, NM 87104

MARK	DATE	DESCRIPTION
△1	07/16	RECORD DWG.

ISSUE:

MANAGEMENT BLOCK

PROJECT NO: REGINALD CHAVEZ
DWG FILE:
DRAWN BY:
CHECKED BY:

DRAINAGE PLAN AND CALCULATIONS

C-101

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
+25.2	RECORD INFORMATION FROM AS-BUILT SURVEY
28.~~95~~.92	RECORD INFORMATION FROM AS-BUILT SURVEY

CONSTRUCTION NOTES:

1. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM 260–1990 FOR DESIGNATION (LINE–SPOTTING) OF EXISTING PUBLIC UTILITIES AND EXISTING UTILITIES OWNED AND OPERATED BY ALBUQUERQUE PUBLIC SCHOOLS.
2. 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 CONTACTING THE ENGINEER AS REQUIRED ABOVE.
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PHASING

THIS PROJECT WILL BE CONSTRUCTED IN PHASES AS FOLLOWS:

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PHASE 2D: CONSTRUCT NEW PLAYGROUND IMPROVEMENTS FOR YDI AND KINDERGARTEN.

DESIGN GRADING LEGEND:

INV	INVERT
TA	TOP OF ASPHALT PAVEMENT
TC	TOP OF CURB
TG	TOP OF GRATE
+ 20.05	EXISTING SPOT ELEVATION
14.00	PROPOSED SPOT ELEVATION
	EXISTING FLOWLINE
	PROPOSED FLOWLINE
4920	EXISTING CONTOUR
20	PROPOSED CONTOUR
	EXISTING DIRECTION OF FLOW
	PROPOSED DIRECTION OF FLOW
	PROPERTY LINE
	EXISTING DRAINAGE BASIN BOUNDARY
	PROPOSED DRAINAGE BASIN BOUNDARY
	HIGH POINT / DIVIDE
	PROPOSED CONCRETE
	PROPOSED ASPHALT PAVING
	PROPOSED SYNTHETIC TURF
	GRAVEL BASE COURSE

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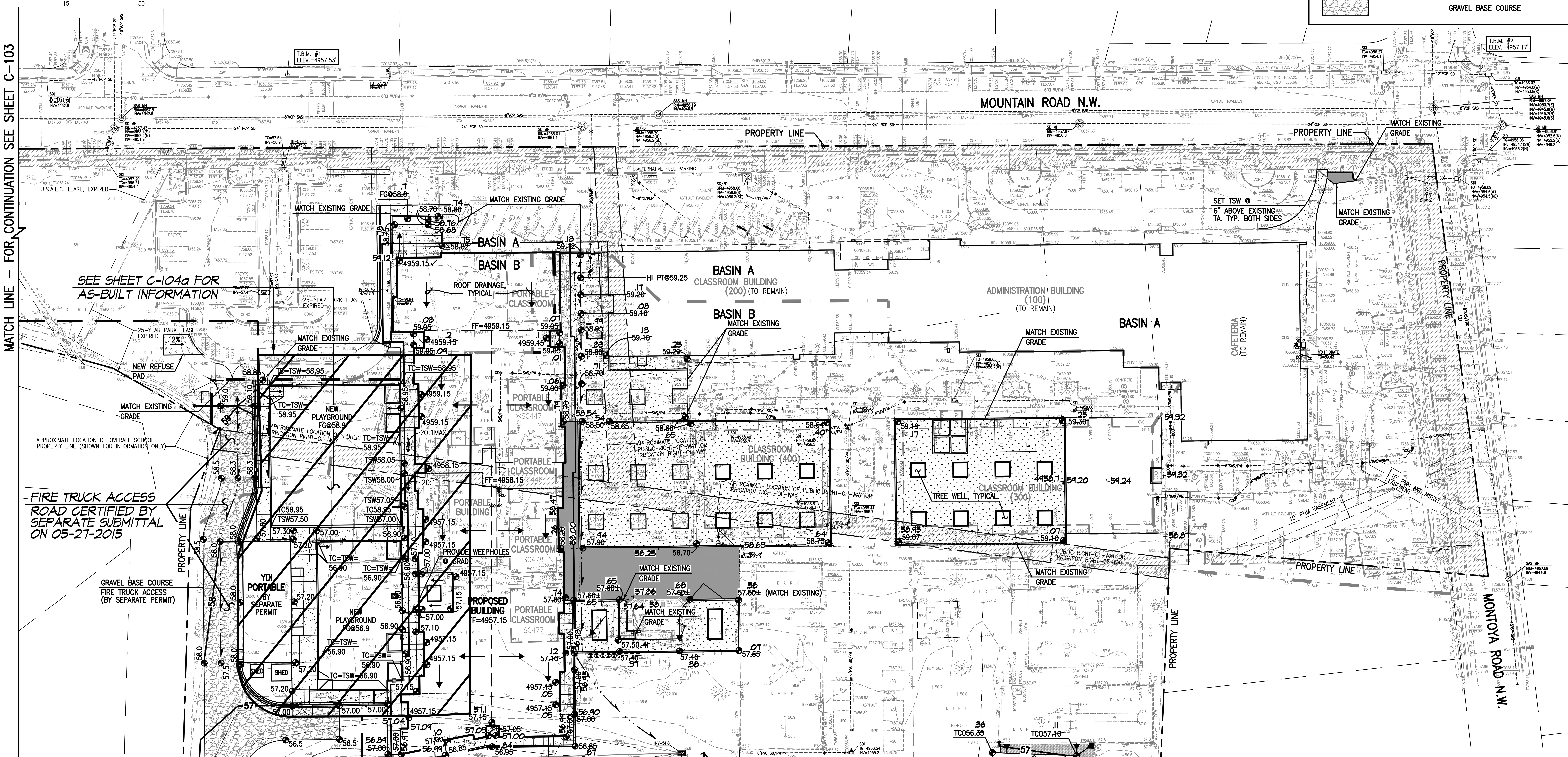
J. GRAEME MEANS NEW MEXICO 13676 REGISTERED PROFESSIONAL ENGINEER

07–26–2016

REGINALD CHAVEZ ELEMENTARY SCHOOL
2700 Mountain Road NW
Albuquerque, NM 87104

SCALE: 1" = 30'



SURVEY NOTE:

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File Path: P:\DATA\2015 APS\2015.185.3\ENG\ | Plot Date: 07-26-2016
File Name: 151853_C-102_REC.DWG | Plot Time: 09:55 am

RECORD DRAWING
FOR CERTIFICATION, SEE SHEET C-103

2015.185.3
~~2013.061.1~~

MARK	DATE	DESCRIPTION
1	07/16	RECORD DWG.

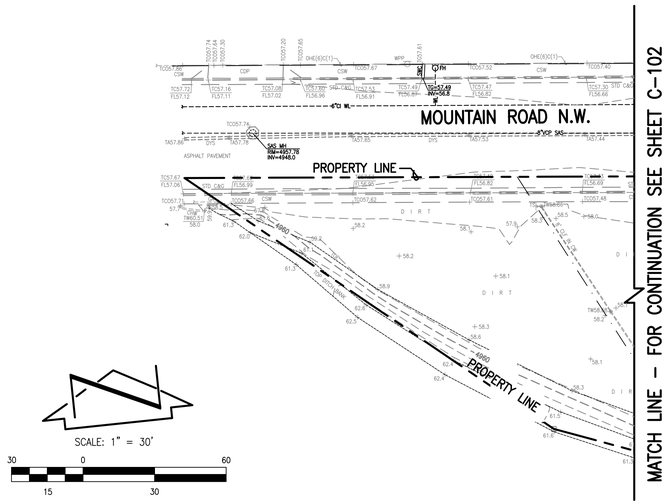
ISSUE:

MANAGEMENT BLOCK

PROJECT NO: REGINALD CHAVEZ
DWG FILE:
DRAWN BY:
CHECKED BY:

GRADING PLAN NORTH

C-102



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TC	TOP OF CURB
TG	TOP OF GRATE
+ 20.05	EXISTING SPOT ELEVATION
14.00	PROPOSED SPOT ELEVATION
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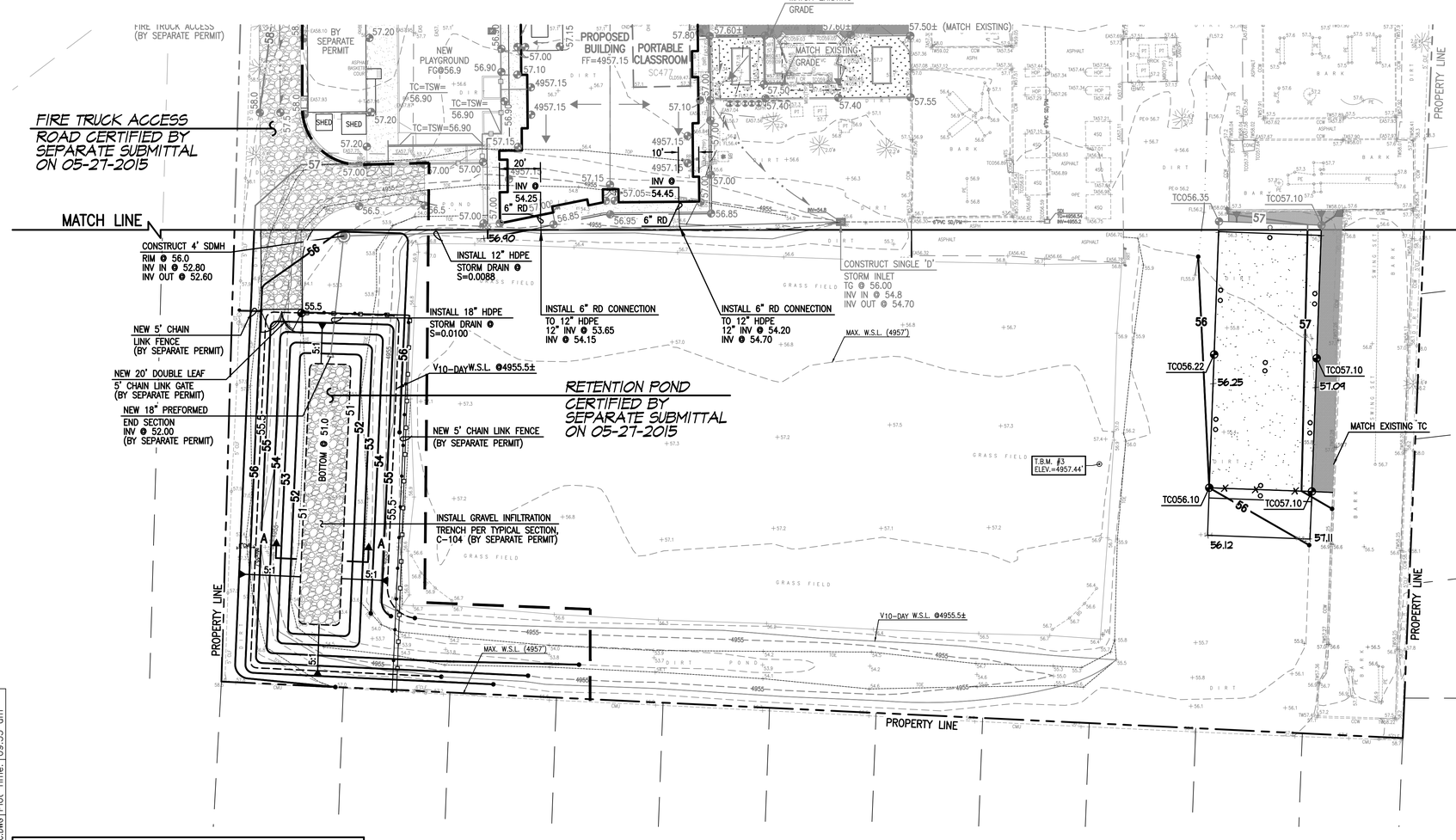
20	PROPOSED CONTOUR
	EXISTING DIRECTION OF FLOW
	PROPOSED DIRECTION OF FLOW
	RIGHT OF WAY LINE
	EXISTING BASIN BOUNDARY
	HIGH POINT / DIVIDE
	PROPOSED CONCRETE
	PROPOSED ASPHALT PAVING



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
+25.2	RECORD INFORMATION FROM AS-BUILT SURVEY
28,98.92	RECORD INFORMATION FROM AS-BUILT SURVEY

ENGINEER'S DRAINAGE CERTIFICATION

I, J. GRAEME MEANS, NMPE 13676, OF THE FIRM HIGH MESA CONSULTING GROUP HEREBY CERTIFY THAT THIS PROJECT HAS BEEN GRADED AND DRAINED IN SUBSTANTIAL COMPLIANCE WITH AND IN ACCORDANCE WITH THE DESIGN INTENT OF THE APPROVED PLAN DATED 11-05-2014. THE RECORD INFORMATION EDITED ONTO THE ORIGINAL DESIGN DOCUMENT WAS OBTAINED 7/19/2016 BY HIGH MESA CONSULTING GROUP UNDER THE DIRECTION OF CHARLES G. CALA, JR, NMPS 11184, AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

THIS CERTIFICATION IS SUBMITTED TO SUPPORT A RECOMMENDATION FOR PERMANENT CERTIFICATE OF OCCUPANCY FOR THE NEW KINDERGARTEN BUILDING AND PLAYROUND, AND TO DOCUMENT COMPLETION OF THE IMPROVEMENTS FOR THE OWNER. 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 ADA 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.

J. GRAEME MEANS, NMPE 13676

07-26-2016
DATE

J. GRAEME MEANS NEW MEXICO 13676 REGISTERED PROFESSIONAL ENGINEER

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⚠ **RECORD DRAWING**

2015.185.3
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THIS DOCUMENT WAS ORIGINALLY ISSUED AND SEALED BY JEFFREY G. MORTENSEN NMPE #8547 ON 11-05-2014

GRAEME MEANS NEW MEXICO 13676 REGISTERED PROFESSIONAL ENGINEER

07-26-2016

REGINALD CHAVEZ ELEMENTARY SCHOOL
2700 Mountain Road NW
Albuquerque, NM 87104

⚠	07/16	RECORD DWG. & CERTIFICATION
MARK	DATE	DESCRIPTION

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GRADING PLAN SOUTH

C-103

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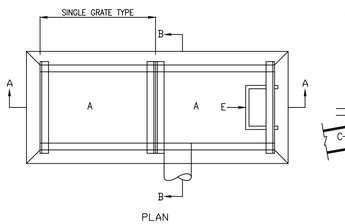
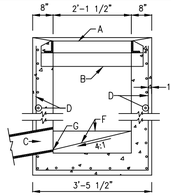
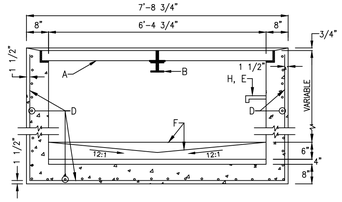






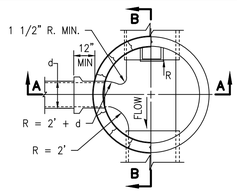
GENERAL NOTES:

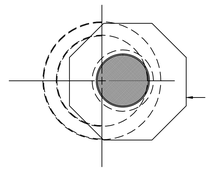
1. FOR SINGLE GRATE TYPE STORM INLET DELETE CENTER SUPPORT AND MOVE ONE END WALL TO FORM NEW SINGLE GRATE INLET.
2. STORM INLET GUTTER TRANSITION NOT REQUIRED.
3. OUTLET PIPE SIZE. PER DESIGN REQUIREMENT.
4. FOR FRAME & GRATING, SEE DWGS. 2216 & 2220.
5. CENTER SUPPORT ASSEMBLY NOT REQUIRED.

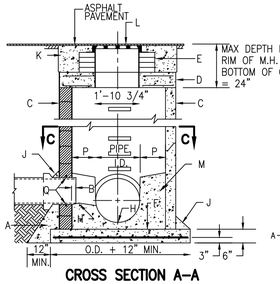
CONSTRUCTION NOTES:

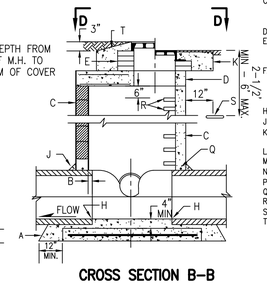
A. FRAME & GRATE
B. CENTER SUPPORT ASSEMBLY. (NOT REQUIRED).
C. CUT ONE HORIZONTAL AND ONE VERTICAL BAR MAX. AT PIPE OPENING.
D. NO. 4 BARS AT 6" O.C. EACH WAY.
E. STEPS NOT REQUIRED.
F. CONCRETE FILL 3000 PSI.
G. INVERT ELEVATION PER DESIGN.

DRAINAGE
STORM INLET DOUBLE "D"
DWG. 2206









GENERAL NOTES

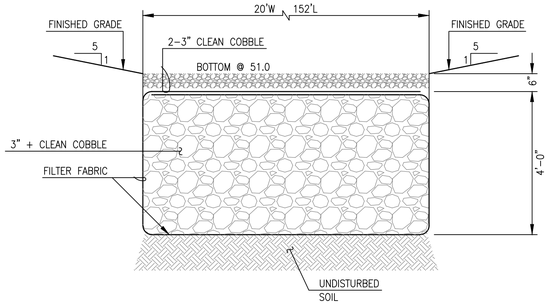
1. USE TYPE "C" MANHOLE FOR DEPTHS OF LESS THAN 6' MEASURED FROM INVERT TO RIM.
2. CONTRACTOR HAS OPTION TO CONSTRUCT TYPE "C" MANHOLE IN LIEU OF TYPE "E" MANHOLE FOR DEPTHS OF 6' OR MORE.
3. DESIGN APPLIES TO 4' TO 6' I.D. MANHOLES.
4. MANHOLE GREATER THAN 18' IN DEPTH SHALL ONLY BE CONSTRUCTION PRECAST CONCRETE SECTIONS.
5. USE NON-SHRINK GROUT FOR JOINTS, FILLETS AND PENETRATIONS.
6. COMPACT ALL BACKFILL AROUND MANHOLE TO 95%.
7. POSITION MANHOLE OPENING OVER THE UPSTREAM SIDE OF MAIN LINE.

CONSTRUCTION NOTES

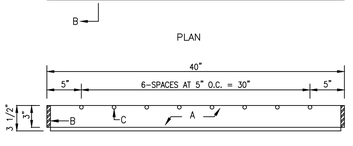
A. CONCRETE PIPE SUPPORTS SHALL EXTEND OUTSIDE OF MANHOLE TO BELL OF FIRST JOINT AND SHALL CRADLE PIPE TO SPRING LINE NOT APPLICABLE FLEXIBLE PIPE.
B. PIPE PENETRATION INTO MANHOLE SHALL BE FLUSH TO 2" MAX., MEASURED AT SPRINGLINE OF PIPE.
C. MANHOLE MAY BE CONSTRUCTED OF POURED CONCRETE OR PRECAST REINFORCED CONCRETE (5" MIN. WALL THICKNESS FOR 4' DIA., 7" MIN WALL THICKNESS FOR 6' DIA.).
D. PRECAST CONCRETE COVER, SEE DWG. 2107.
E. USE MAX., 4 COURSES OR MS BRICK ON UNPAVED STREET FOR FUTURE ADJUSTMENT OF MANHOLE FRAME TO PAVEMENT GRADE PLASTER INSIDE WITH 1/2" MORTAR.
F. CONCRETE BASE TO BE POURED IN PLACE USING NO. 4 BARS AT 6" O.C. EA. WAY FOR MANHOLE DEPTH OF 16' OR GREATER. NO. 4 BARS AT 12" O.C. EA. WAY FOR MANHOLE LESS THAN 16' IN DEPTH.
H. INVERT ELEVATION OF STUB OR LATERAL AS SHOWN ON PLANS.
J. 6" GROUT FILLET ON UPPER HALF OF PIPE AND AROUND BASE.
K. USE A 5' X 5' x 6" THICK OCTAGONAL CONCRETE PAD IN A ALL AREAS.
L. FRAME AND COVER, SEE DWG. 2110.
M. CONCRETE, SEE NMAPWA SPEC. SECTION 101.
N. SLOPE 1" PER FT. FROM PIPE CROWN.
P. SHELF TO BE 9" WIDE MIN.
Q. APPROVED WATERSTOP TO BE COMPATIBLE WITH TYPE OF PIPE.
R. STEPS TO BE INSTALLED AS PER NMAPWA SPEC. SECTION 920.
S. EMD (IN UNPAVED AREAS).
T. IN UNPAVED AREAS SET FRAME TO GRADE AND SLOPE OF PAD.

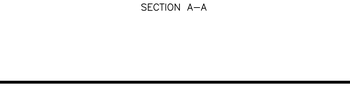
REVISIONS
11/14/91

STORM
MANHOLE TYPE "C"
DWG. 2101



GRAVEL INFILTRATION TRENCH (SECTION A-A)
SCALE: 1" = 2'-0"
(BY SEPARATE SUBMITTAL; N.I.C.)





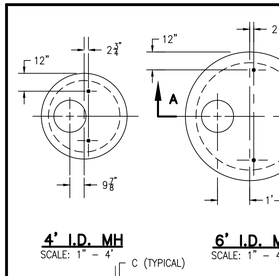
GENERAL NOTES:

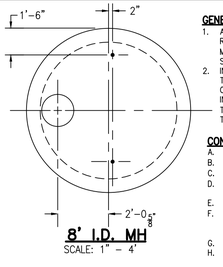
1. ALL EXPOSED METAL PARTS SHALL BE PAINTED PRIOR TO ASSEMBLY. WELDING, MACHINING AND DRILLING SHALL BE DONE PRIOR TO PAINTING. ALL DIMENSIONS ARE FINISHED DIMENSIONS.
2. ALL PARTS SHALL BE OF STRUCTURAL STEEL, GRADE 36.
3. AFTER CLEANING SURFACE OF SCALE, RUST, ETC., GRATING AND FRAME SHALL BE PAINTED WITH ONE SHOP COAT RED OXIDE, TWO FINISH COATS ALUMINUM PAINT (AASHTO M 69).
4. FRAME MAY BE WELDED OR RIVETED.

CONSTRUCTION NOTES:

A. 4" X 3" X 1/2" X 3'- 1/2" ∠.
B. 2 – 3/8" RIVETS AT EACH CORNER, SEE GENERAL NOTE NO. 5.
C. 4 – 1/2" X 8" BOLTS WITH SQUARE HEAD & NUT AT EACH CORNER FOR ANCHORING FRAME INTO CONCRETE WALL.
D. 3 – 1/2" X 3" X 3/8" X 3'- 4 – 3/8" ∠.

DRAINAGE
STORM INLET FRAME
DWG. 2216





GENERAL NOTES

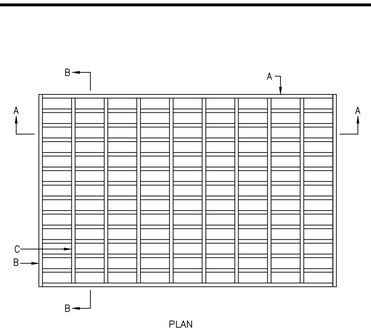
1. ALL MANHOLES 20' DEEP OR DEEPER WILL REQUIRE A INTERMEDIATE LANDING IN THE MANHOLE BARREL. TYPE "C" MANHOLE COVERS SHALL BE USED AS INTERMEDIATE LANDINGS.
2. INTERMEDIATE LANDINGS SHALL BE LOCATED AT THE MID POINT + OR – 2 FEET OF THE HEIGHT OF THE MANHOLE. AT NO TIME SHALL A INTERMEDIATE LANDING OR A SIZE ADJUSTMENT TOP BE INSTALLED CLOSER THAN 8' UP FROM THE INVERT OF THE MANHOLE.

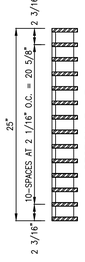
CONSTRUCTION NOTES

A. PRECAST REINFORCED CONCRETE MANHOLE COVER.
B. ALL BARS TO HAVE 1-1/2" MIN. COVER.
C. 1" PIPE SLEEVE VERTICALLY THROUGH COVER.
D. TOP MAT NO. 4 BARS 6" O.C. EA. WAY FOR 4, 6, AND 8 FT. I.D. MANHOLES.
E. NO. 4 BARS.
F. BOTTOM MAT NO. 4 BARS 6" O.C. EA. WAY FOR 4 AND 6 FT. I.D. MANHOLES, NO. 8 BARS 8" O.C. EA. WAY FOR 8 FT. I.D. MANHOLES.
G. NO. 4 BARS FOR 4 AND 6 FT. I.D. MANHOLES.
H. WHEN PRECAST MANHOLE SECTIONS ARE USED, COVER SHALL BE MODIFIED TO SHAPE OF APPROPRIATE SIZE I AND G JOINT.
I. CONCRETE, SEE SECTION 101, NMAPWA.

REVISIONS
11-14-9

STORM
CONC. MH COVER TYPE "C"
DWG. 2107





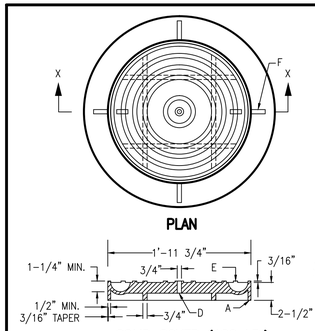
GENERAL NOTES:

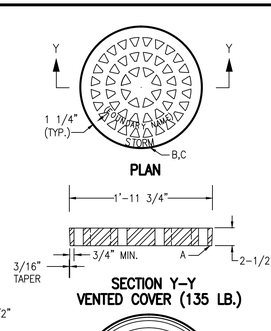
1. ALL BARS SHALL BE STRUCTURAL GRADE STEEL, GRADE A36.
2. THE GRATE SHALL BE WELDED WITH 1/8" FILLET WELD AROUND BOTH SIDES OF CROSS BARS. 1/4" FILLET WELD BOTH SIDES OF BEARING BARS TO END BARS.
3. AFTER CLEANING SURFACE OF SCALE, RUST, OILS, ETC., PAINT GRATE WITH ONE SHOP COAT RED OXIDE, TWO FINISH COATS OF ALUMINUM PAINT (AASHTO M 69).
4. TOP OF CROSS BARS SHALL BE FLUSH WITH TOP OF GRATE.
5. GRIND WELDS FLUSH WITH BEARING BARS.
6. WHEN INSTALLED IN FRAME, PUSH TIGHT TO ONE SIDE. OTHER SIDE SHALL HAVE 1/2" MAX. OPENING. SPACERS WELDED TO FRAME MAY BE USED IF REQUIRED TO KEEP 1/2" SPACE OR LESS.

CONSTRUCTION NOTES:

A. BEARING BARS. (13) 1/2" X 3 1/2" X 39".
B. END BARS (2) 1/2" X 3" X 25".
C. CROSS BARS, (7) 1/2" DIA. X 24.

DRAINAGE
STORM INLET
DWG. 2220





GENERAL NOTES

1. STANDARD CAST IRON M.H. FRAME AND COVER WEIGHTS: COVER = 180 LBS., FRAME = 145 LBS. TOTAL = 325 LBS. (TOLERANCE = ±5%)
2. REFERENCE SPEC. SECTION 130.

CONSTRUCTION NOTES

A. MACHINED OR GROUND BEARING SURFACES.
B. "SEWER", "WATER", OR "STORM", CAST ON COVER TO IDENTIFY SANITARY SEWER, WATER OR STORM DRAINAGE SYSTEMS RESPECTIVELY.
C. LETTER SIZE TO BE 1" MIN. IN HEIGHT, TYPICAL.
D. VENT HOLE REQUIRED.
E. MONOLITHIC CAST IRON OR STEEL ROD INSERTS AT MANUFACTURER'S OPTION. IF INSERT IS PROVIDED IT MUST HAVE 3/16" MIN. COVER AND 3/4" END EMBEDMENT IN CASTING.
F. GUSSETS OPTIONAL IF REQUIRED BY MANUFACTURER.

REVISIONS

MANHOLE FRAME AND COVERS
DWG 2110

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GRAEME MEANS MORTENSEN 8547 NEW MEXICO REGISTERED PROFESSIONAL ENGINEER

07-26-2016

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⚠	07/16	RECORD DWGS.
MARK	DATE	DESCRIPTION

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DRAINAGE SECTIONS AND DETAILS

C-104

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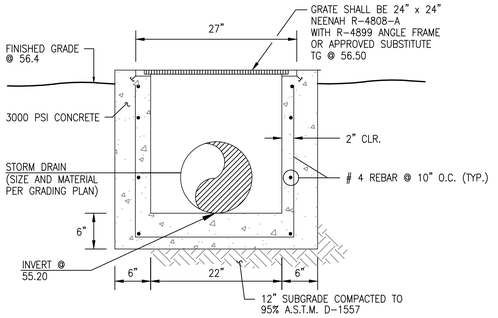


TYPICAL 24"X24" STORM INLET SECTION

SCALE: 1" = 1' - 0"

CONSTRUCTION NOTES:

1. TWO (2) WORKING DAYS PRIOR TO ANY EXCAVATION, CONTRACTOR MUST CONTACT NEW MEXICO ONE CALL SYSTEM 260-1990 FOR DESIGNATION (LINE-SPOTTING) OF EXISTING PUBLIC UTILITIES AND EXISTING UTILITIES OWNED AND OPERATED BY ALBUQUERQUE PUBLIC SCHOOLS.
2. 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 CONTACTING THE ENGINEER AS REQUIRED ABOVE.
3. 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.
4. ALL CONSTRUCTION WITHIN PUBLIC RIGHT-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE CITY OF ALBUQUERQUE STANDARDS AND PROCEDURES.
5. IF ANY UTILITY LINES, PIPELINES, OR UNDERGROUND UTILITY LINES ARE SHOWN ON THESE DRAWINGS, THEY 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, MAKES NO REPRESENTATION PERTAINING THERETO, 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 LINES AND FACILITIES.
6. 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. FOR CONSTRUCTION DETAILS, REFER TO LANDSCAPING PLAN.

EROSION CONTROL MEASURES:

1. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE SITE INTO PUBLIC RIGHT-OF-WAY OR ONTO PRIVATE PROPERTY.
2. 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.
3. 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.

PHASING

THIS PROJECT WILL BE CONSTRUCTED IN PHASES AS FOLLOWS:

PHASE 1: REMOVE AND RELOCATE EXISTING PORTABLE CLASSROOM BUILDINGS INCLUDING THE DEMOLITION OF THE EXISTING IMPROVEMENTS WITHIN THE FOOTPRINT OF THE PROPOSED PERMANENT BUILDING. THE APS PORTABLE CLASSROOM BUILDINGS WILL TEMPORARILY BE LOCATED TO THE IMMEDIATE WEST OF THE NEW BUILDING IN THE PROXIMITY OF THE EXISTING BASKETBALL COURTS. THIS WORK BY SEPARATE SUBMITTAL AND PERMIT (N.I.C.)

PHASE 2A: CONSTRUCT NEW PERMANENT CLASSROOM BUILDING.

PHASE 2B: DEMOLISH EXISTING BUILDINGS 300 AND 400 AND CONSTRUCT NEW COURTYARD IMPROVEMENTS BY SEPARATE PERMIT (N.I.C.)

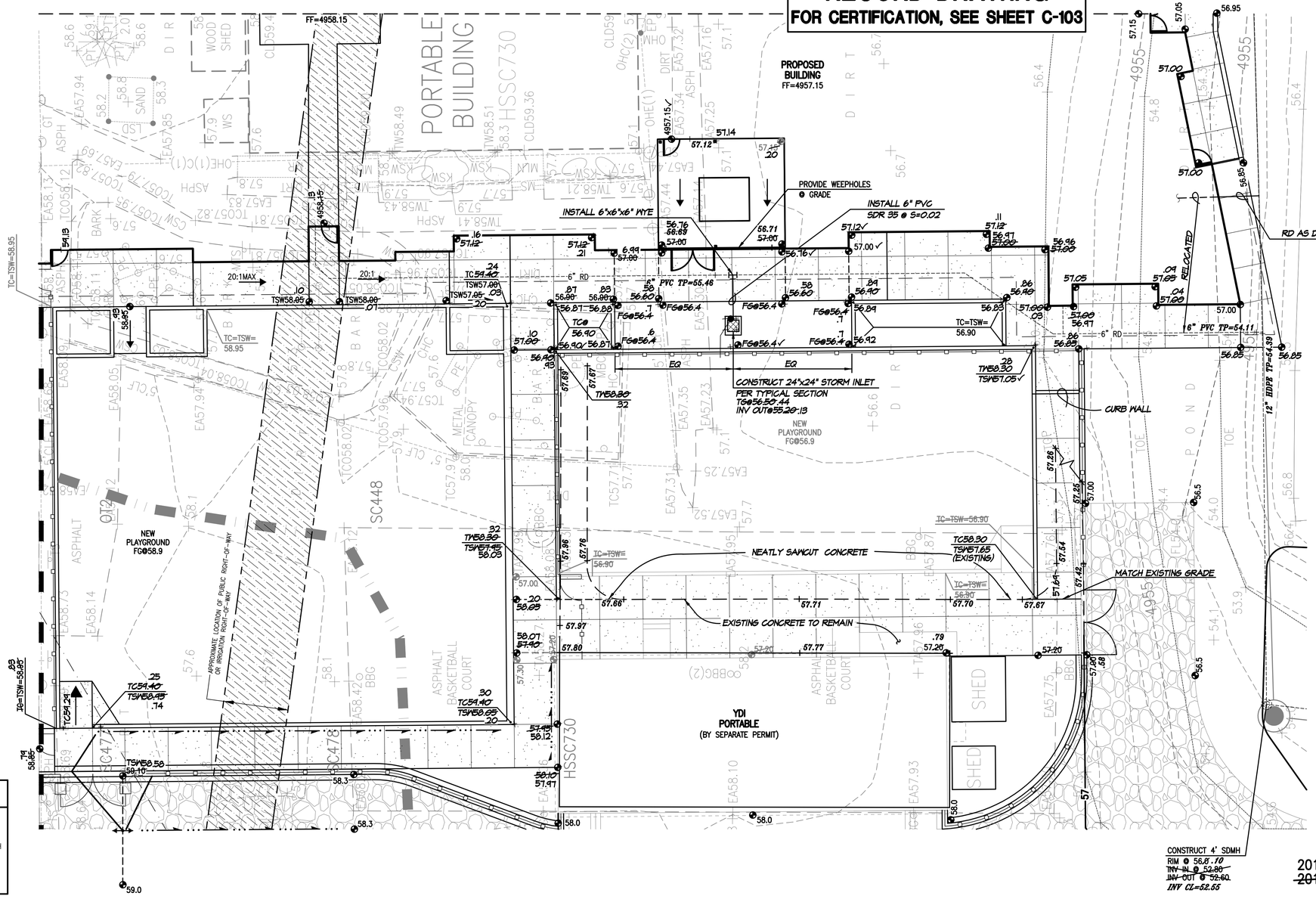
PHASE 2C: REMOVE EXISTING APS PORTABLE CLASSROOM BUILDINGS FROM SITE (N.I.C.)

PHASE 2D: CONSTRUCT NEW PLAYGROUND IMPROVEMENTS FOR YDI AND KINDERGARTEN.

DESIGN GRADING LEGEND:

INV	INVERT
TA	TOP OF ASPHALT PAVEMENT
TC	TOP OF CURB
TG	TOP OF GRATE
+ 20.05	EXISTING SPOT ELEVATION
14.00	PROPOSED SPOT ELEVATION
+57.66	AS-BUILT ELEVATION
FG@56.4	REVISED ELEVATION PER THIS PLAN
	EXISTING FLOWLINE
	PROPOSED FLOWLINE
-4920-	EXISTING CONTOUR
	PROPOSED CONTOUR
	EXISTING DIRECTION OF FLOW
	PROPOSED DIRECTION OF FLOW
	PROPERTY LINE
	EXISTING DRAINAGE BASIN BOUNDARY
	PROPOSED DRAINAGE BASIN BOUNDARY
	HIGH POINT / DIVIDE
	PROPOSED CONCRETE
	GRAVEL BASE COURSE

RECORD DRAWING
FOR CERTIFICATION, SEE SHEET C-103



SCALE: 1" = 10'

10 0 20
5 10

RECORD DRAWING LEGEND

CONSTRUCT	RECORD INFORMATION (VERIFIED BY ENGINEER)
✓	AS-CONSTRUCTED = AS-DESIGNED (VERIFIED BY AS-BUILT SURVEY)
38.42"	RECORD INFORMATION FROM AS-BUILT SURVEY
+25.2	RECORD INFORMATION FROM AS-BUILT SURVEY
28,98.92	RECORD INFORMATION FROM AS-BUILT SURVEY

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GRADING PLAN NORTH

C-104a

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