



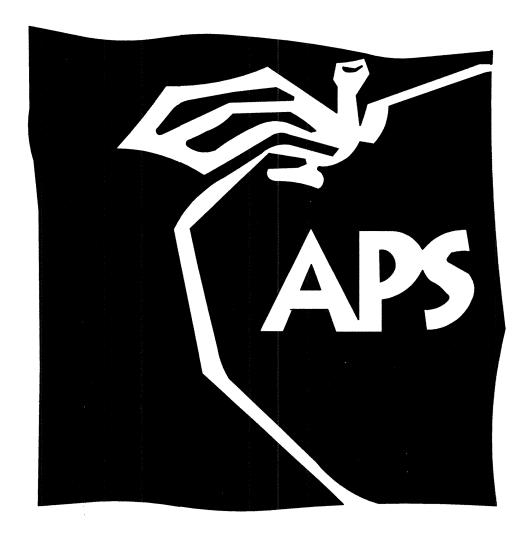
CONSTRUCTION PLANS

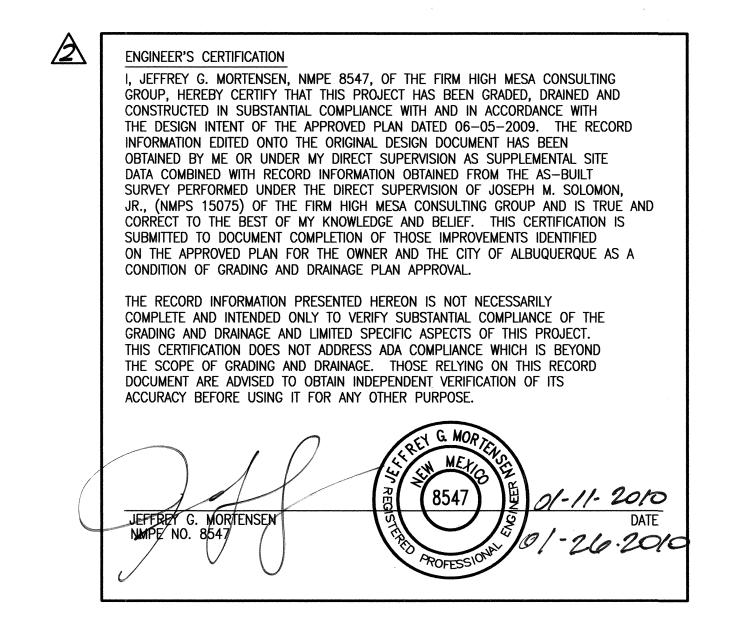
for

MASTER DRAINAGE PLAN IMPROVEMENTS -PHASE 2-B

ALBUQUERQUE HIGH SCHOOL

ALBUQUERQUE, NEW MEXICO JUNE, 2009





DRAWINGS

DESCRIPTION
COVER SHEET, VICINITY MAP, GENERAL NOTES, LEGEND AND INDEX OF DRAWINGS
DRAINAGE PLAN & CALCULATIONS
DEMOLITION PLAN - NORTH
DEMOLITION PLAN - SOUTH
GRADING AND LAYOUT PLAN - NORTH
GRADING AND LAYOUT PLAN - SOUTH
STORM DRAIN PLAN AND PROFILE
STORM INLET SECTIONS AND DETAILS
POND AND SPILLWAY SECTIONS AND DETAILS
PAVING AND DRAINAGE SECTIONS AND DETAILS
MANHOLE AND STANDPIPE SECTIONS AND DETAILS
EROSION CONTROL PLAN - NORTH
EROSION CONTROL PLAN - SOUTH
EROSION CONTROL PLAN NOTES AND DETAILS

GENERAL NOTES

BE CONSTRUCTED IN ACCORDANCE WITH THE NEW MEXICO STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION REVISED 12/2006

(D6) VICINITY MAP

- (ALBUQUERQUE AREA) 1-800-321-ALERT (2537) (STATEWIDE) FOR LOCATION OF EXISTING PUBLIC UTILITIES AND ABASTO UTILITY LOCATING

- THE CONTRACTOR SHALL MAINTAIN ACCESS TO ADJACENT PROPERTIES DURING CONSTRUCTION.
- ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL

- CONTRACTOR SHALL NOTIFY THE ENGINEER NOT LESS THAN SEVEN (7) DAYS PRIOR TO STARTING WORK IN ORDER THAT TAKE NECESSARY MEASURES TO ENSURE THE PRESERVATION OF SURVEY MONUMENTS. CONTRACTOR SHALL NOT DISTURB PERMANENT SURVEY DISTURBED WITHOUT PERMISSION. REPLACEMENT SHALL BE DONE ONLY BY THE ENGINEER. WHEN A CHANGE IS MADE IN THE FINISHED ELEVATION OF THE PAVEMENT OF ANY ROADWAY IN WHICH A PERMANENT SURVEY MONUMENT IS LOCATED, CONTRACTOR SHALL, AT HIS OWN EXPENSE, ADJUST THE MONUMENT COVER TO THE NEW GRADE UNLESS OTHERWISE SPECIFIED.
- 10. ALL PAVEMENT MARKINGS AND TRAFFIC SIGNS SHALL COMPLY WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) PUBLISHED BY THE U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION, LATEST EDITION.
- 11. IF THE REMOVAL OF EXISTING CURB AND GUTTER, SIDEWALK, AND/OR PAVING IS REQUIRED, THE CONTRACTOR SHALL SAWCUT AND/OR REMOVE TO THE NEAREST JOINT. WHEN ABUTTING NEW PAVEMENT TO EXISTING, THE CONTRACTOR SHALL CUT BACK THE EXISTING PAVING TO A STRAIGHT LINE IN ORDER TO REMOVE ANY BROKEN OR CRACKED PAVEMENT. CURB AND GUTTER AND/OR PAVEMENT SHOWN AS EXISTING AND NOT TO BE REMOVED UNDER THIS CONTRACT AND WHICH IS DAMAGED OR DISPLACED BY THE CONTRACTOR SHALL BE REMOVED AND REPLACED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
- 12. A DISPOSAL SITE FOR ALL EXCESS EXCAVATION MATERIAL (CONTAMINATED OR OTHERWISE), ASPHALTIC PAVING, CONCRETE PAVING, ETC. SHALL BE OBTAINED BY THE CONTRACTOR IN COMPLIANCE WITH APPLICABLE REGULATIONS. ALL COSTS INCURRED IN OBTAINING A DISPOSAL SITE AND IN HAUL THERETO SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION, THEREFORE, NO SEPARATE PAYMENT SHALL BE MADE.
- 13. A BORROW SITE FOR IMPORT MATERIAL SHALL BE OBTAINED BY THE CONTRACTOR IN COMPLIANCE WITH APPLICABLE REGULATIONS. ALL COSTS INCURRED IN OBTAINING A BORROW SITE AND IN HAUL THERETO SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION, THEREFORE, NO SEPARATE PAYMENT SHALL BE MADE.
- 14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SAFELY OBTAINING THE REQUIRED COMPACTION. THE CONTRACTOR SHALL SELECT AND USE METHODS WHICH SHALL NOT BE INJURIOUS OR DAMAGING TO THE EXISTING FACILITIES AND STRUCTURES WHICH SURROUND THE WORK AREAS. 15. THE CONTRACTOR SHALL CONFINE HIS WORK WITHIN THE CONSTRUCTION LIMITS IN ORDER TO PRESERVE THE EXISTING IMPROVEMENTS AND SO
- AS NOT TO INTERFERE WITH THE OPERATIONS OF THE EXISTING FACILITIES. 16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SELECTING APPROPRIATE MEANS AND METHODS TO EXCAVATE AND TRENCH AND/OR INSTALL PIPE SO AS TO NOT EXCEED RIGHT-OF-WAY OR EASEMENT LIMITS, AND SO AS NOT TO INTERFERE WITH OTHER UTILITIES OR IMPROVEMENTS. THIS
- SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION, THEREFORE, NO SEPARATE PAYMENT WILL BE MADE. 17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING, SUPPORTING AND REPLACING, IF DAMAGED, ALL UTILITIES ENCOUNTERED DURING
- CONSTRUCTION. THIS SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION, THEREFORE, NO SEPARATE PAYMENT WILL BE MADE. 18. ALL DIMENSIONS AND RADII OF CURB, CURB RETURNS, AND WALLS ARE SHOWN TO THE FACE OF CURB AND/OR WALL. 19. THE CONTRACTOR SHALL NOTIFY THE OWNER 48 HOURS PRIOR TO STRIPING SO THAT LAYOUT CAN BE VERIFIED.
- 20. 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. 21. WHEN APPLICABLE, CONTRACTOR SHALL SECURE, ON BEHALF OF THE OWNER AND OPERATORS, "TOPSOIL DISTURBANCE PERMIT" FROM THE CITY AND/OR FILE A NOTICE OF INTENT (N.O.I.) WITH THE EPA PRIOR TO BEGINNING CONSTRUCTION.
- 22. ALL FILL SHALL BE FREE FROM VEGETATION, DEBRIS, AND OTHER DELETERIOUS MATERIALS.
- 23. ALL FILL SHALL BE COMPACTED TO A MINIMUM OF 95% ASTM D-1557 UNLESS A GREATER COMPACTION REQUIREMENT IS OTHERWISE SPECIFIED. 24. CAUTION: THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL REMAIN THE RESPONSIBILITY OF THE CONTRACTOR. ALL EXCAVATION, TRENCHING AND SHORING ACTIVITIES MUST BE CARRIED-OUT IN ACCORDANCE WITH OSHA 29 CFR 1926, SUBPART P-EXCAVATIONS.

JOB NO. 2007.183.7

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REV.	SHEETS	CITY ENGINEER	DATE	USER	DEPARTMENT	DATE	USER	DEPARTMENT	DATE
•			APPRO'	VAL OF	REVISIONS				



MESA Consulting Group 6010-B MIDWAY PARK BLVD. NE • ALBUQUERQUE, NEW MEXICO 87109 PHONE: 505.345.4250 • FAX: 505.345.4254 • www.highmesacg.com APPROVED FOR CONSTRUCTION

ST PAUL LUTHERAN CHURCH

SOUTHWESTERN

J - 15

EDUCATION

SHEET 1 OF 14

CERTIFICATE OF OCCUPANCY FOR THE NEW BUILDING ADDITIONS CURRENTLY UNDER

CONSTRUCTION IN BASIN A1-C. II. PROJECT DESCRIPTION

AS SHOWN BY THE VICINITY MAP (J-15), THE SITE IS BORDERED BY ODELIA ROAD TO THE NORTH, INTERSTATE 25 TO THE EAST, MOUNTAIN ROAD TO THE SOUTH, AND RESIDENTIAL HOUSING TO THE WEST. THE PROPERTY IS - UNPLATTED TRACT OF LAND - ALBUQUERQUE HIGH SCHOOL: LOCATED AT 800 ODELIA ROAD N.E. THE PROPERTY IS OWNED BY THE ALBUQUERQUE PUBLIC SCHOOLS AND IS OPERATED AS A HIGH SCHOOL. AS INDICATED BY PANELS 332 OF 825 OF THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAPS PUBLISHED BY FEMA FOR BERNALILLO COUNTY, NEW MEXICO, NOVEMBER 19, 2003. THIS SITE DOES NOT LIE WITHIN A DESIGNATED FLOOD HAZARD ZONE.

III. BACKGROUND DOCUMENTS & RESEARCH

- REVIEW OF THE FOLLOWING DOCUMENTS WERE USED IN THE PREPARATION OF THIS SUBMITTAL: A. ALBUQUERQUE HIGH SCHOOL MASTER DRAINAGE PLAN PREPARED BY HIGH MESA CONSULTING GROUP DATED NOVEMBER 12, 1992, SUPERSEDED BY THE MASTER DRAINAGE PLAN PREPARED BY HIGH MESA CONSULTING GROUP DATED JULY 27, 2007. THE ORIGINAL MASTER DRAINAGE PLAN OUTLINES A MAXIMUM DISCHARGE RATE OF 3.3 CFS INTO ODELIA ROAD NE.
- ALBUQUERQUE HIGH SCHOOL MASTER DRAINAGE PLAN PREPARED BY HIGH MESA CONSULTING GROUP DATED JULY 27, 2007, THE MASTER DRAINAGE PLAN (MDP) IDENTIFIES SPECIFIC DRAINAGE BASINS WITHIN THE SITE ALONG WITH THE HYDROLOGY OF EACH BASIN. THE MDP FURTHER ESTABLISHES THE FOLLOWING CRITERIA FOR SUBSEQUENT DEVELOPMENT:
 - 1. CONSTRUCT THREE NEW INLETS ALONG THE WEST ACCESS ROAD (COMPLETED AS PART OF TRACK AND DRAINAGE IMPROVEMENTS PROJECT)
- 2. ENLARGE THE "UPPER POND" (BASIN A-1C) (COMPLETED AS PART OF TRACK AND DRAINAGE IMPROVEMENTS PROJECT)
- 3. INSTALL A 24" STAND PIPE AND REPLACE 6" STORM DRAIN CONNECTING THE "UPPER POND" (BASIN A-1C) TO THE "LOWER POND" (BASIN A-1D)
- 4. CONSTRUCT A SINGLE 'D' INLET WITHIN THE PARKING AREA OF BASIN A-1C TO ELIMINATE SURFACE PONDING AND POTENTIAL OVERFLOW ONTO ADJACENT PROPERTIES 5. ENLARGE THE "LOWER POND" (BASIN A-1D) TO DETAIN DEVELOPED RUNOFF AND
- RESTRICT DISCHARGE TO PREVIOUSLY APPROVED PEAK RATE OF DISCHARGE OF 3.3 CFS. FROM THE MASTER DRAINAGE PLAN FOR ALBUQUERQUE HIGH SCHOOL DATED 11/12/1992.
- THE MDP PROVIDED THE HYDROLOGIC CALCULATIONS FOR BASINS A-1A, A-1C A1-D AND A2-A WHICH ARE INCLUDED IN THIS PLAN.
- C. ALBUQUERQUE HIGH SCHOOL TRACK AND DRAINAGE IMPROVEMENTS PREPARED BY HIGH MESA CONSULTING GROUP DATED JULY 10, 2008. THE TRACK AND DRAINAGE IMPROVEMENTS ENLARGED THE UPPER DETENTION BASIN WHICH CONTRIBUTES TO THE DOWNSTREAM DETENTION BASIN IN THIS PROJECT. AND WAS MODIFIED TO DIVERT RUNOFF FROM UPSTREAM BASINS TO THE DETENTION BASIN IN THIS PROJECT, REDUCING THE PEAK RATE OF DISCHARGE FLOWING TO ODELIA ROAD NE, AS IDENTIFIED IN ITEMS 1 & 2.,
- ALBUQUERQUE HIGH SCHOOL 2008 MASTER DRAINAGE PLAN PHASE 2A IMPROVEMENTS AND PORTABLE RELOCATION GRADING PLAN PREPARED BY HIGH MESA CONSULTING GROUP DATED DECEMBER 16. 2008. THIS PROJECT RELOCATED FOUR PORTABLE CLASSROOMS TO ALLOW THE DETENTION BASIN IN THIS PLAN TO BE ENLARGED.
- E. ALBUQUERQUE HIGH SCHOOL ADDITION GRADING AND DRAINAGE PLAN PREPARED BY WALLA ENGINEERING. LTD. DATED JANUARY 15. 2009. THE ALBUQUERQUE HIGH SCHOOL ADDITION REQUIRES A PERMANENT CERTIFICATE OF OCCUPANCY, SUPPORTED BY THE IMPROVEMENTS OUTLINED IN THE ALBUQUERQUE HIGH SCHOOL MASTER DRAINAGE PLAN IMPROVEMENTS PHASE 2B.
- IV. EXISTING CONDITIONS

THE AREA OF THE SITE OUTLINED IN THIS PROJECT IS CURRENTLY DEVELOPED AS A DETENTION POND AND A PAVED AREA PREVIOUSLY UTILIZED FOR PORTABLE CLASSROOMS. AN UPSTREAM DETENTION POND IN BASIN A1-C WAS ENLARGED AND MODIFIED BY THE ALBUQUERQUE HIGH SCHOOL TRACK AND DRAINAGE IMPROVEMENTS PROJECT CONTRIBUTES TO THIS AREA, DISCHARGING RUNOFF VIA 6" STORM DRAIN PIPES OVERLAND TO BASIN A1-D AND DOWNSTREAM DETENTION POND BEING IMPROVED BY THIS PROJECT.

BASIN A1-C INCLUDES THE UPPER DETENTION POND PREVIOUSLY ENLARGED BY THE ALBUQUERQUE HIGH SCHOOL TRACK AND DRAINAGE IMPROVEMENTS PROJECT. THIS POND WAS ENLARGED TO ACCOMMODATE A LARGER CONTRIBUTING AREA UPSTREAM, INCLUDING THE CONSTRUCTION OF STORM INLETS TO INTRODUCE THE ADDITIONAL RUNOFF TO THE POND AND INTERCEPT ROOF DRAINAGE FROM THE EXISTING GYMNASIUM. THE PREVIOUSLY CONSTRUCTED IMPROVEMENTS DIVERTS 13.4 CFS FROM BASIN A-2B TO BASIN A-1C AND FLOWING INTO ODELIA ROAD NE. THIS PROJECT WILL MODIFY THE EXISTING STANDPIPE TO ADD A 18" DIAMETER DISCHARGE PIPE TO CONVEY RUNOFF TO THE DOWNSTREAM POND IN BASIN A-1D.

V. DEVELOPED CONDITIONS

BASIN A1-D INCLUDES THE LOWER DETENTION POND AND A PAVED AREA PREVIOUSLY OCCUPIED BY PORTABLE CLASSROOM BUILDINGS. THE PORTABLE CLASSROOM BUILDINGS WERE RELOCATED BY THE ALBUQUERQUE HIGH SCHOOL MASTER DRAINAGE PLAN IMPROVEMENTS PHASE 2A. THIS PROJECT WILL REMOVE THE ASPHALT PAVEMENT IN THE PORTABLE PARK AND ENLARGE THE LOWER DETENTION POND. THE IMPROVEMENTS WILL ALSO INCLUDE THE CONSTRUCTION OF A CURB AND GUTTER TO CONTROL FLOWS ENTERING THE POND FROM THE EAST, RIP-RAP APRONS TO MITIGATE THE EROSIVE CONCENTRATED FLOWS ENTERING THE PONDS VIA CURB OPENINGS AND STORM DRAIN PIPE. THE LOWER DETENTION POND WILL ACCEPT THE ADDITIONAL FLOWS FROM THE UPPER DETENTION BASIN VIA A NEW 24" STORM DRAIN PIPE.

THE IMPROVEMENTS OUTLINED IN THIS PROJECT WERE RECOMMENDED BY THE PREVIOUSLY APPROVED MASTER DRAINAGE PLAN AND ARE REQUIRED FOR A CERTIFICATE OF OCCUPANCY OF THE NEW BUILDING ADDITIONS. ONCE COMPLETED, THESE IMPROVEMENTS WILL DECREASE THE PEAK RATE OF DISCHARGE OF THE RUNOFF TO ODELIA ROAD BY 10.3 CFS AS OUTLINED IN THE PREVIOUSLY APPROVED MASTER DRAINAGE PLAN.

VI. CALCULATIONS

CALCULATIONS ANALYZING THE EXISTING AND DEVELOPED CONDITIONS FOR THE 100 - YEAR, 6 - HOUR RAINFALL EVENT WERE PREPARED FOR THIS PROJECT BY THE PREVIOUSLY APPROVED MASTER DRAINAGE PLAN. THE CALCULATIONS FOR BASINS A-1D HAVE BEEN DUPLICATED IN THIS PLAN USING 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, FOR QUANTIFYING THE PEAK RATE OF DISCHARGE, VOLUME OF RUNOFF GENERATED AND RUNOFF HYDROGRAPHS. MANNINGS EQUATION WAS USED TO CALCULATE THE MAXIMUM FLOW RATE IN STORM DRAIN PIPE. AND THE ORIFICE EQUATION WAS USED TO QUANTIFY THE RUNOFF DISCHARGE RATE OF THE LOWER DETENTION POND. AS OUTLINED BY THE PREVIOUSLY APPROVED MASTER DRAINAGE PLAN BASIN A WILL EXPERIENCE A DECREASE IN PEAK RATE OF DISCHARGE TO ODELIA ROAD NE OF 10.3 CFS.

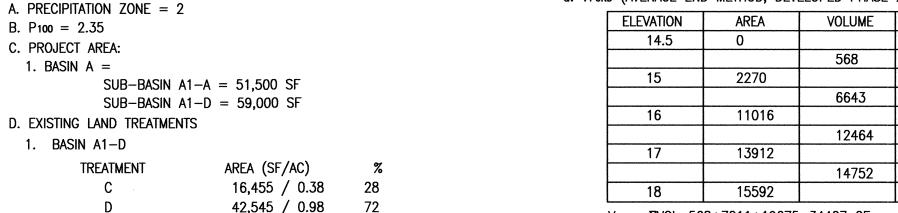
- VII. CONCLUSIONS
- THE SITE IS AN EXISTING HIGH SCHOOL WITHIN AN INFILL AREA DRAINAGE IMPROVEMENTS FOR THE SITE ARE GOVERNED BY A PREVIOUSLY APPROVED

DISCHARGE FLOWING TO PUBLIC STORM DRAIN FACILITIES

- MASTER DRAINAGE PLAN PREPARED BY HIGH MESA CONSULTING GROUP THE PROPOSED IMPROVEMENTS ARE CONSISTENT WITH THE IMPROVEMENTS OUTLINED. RECOMMENDED AND APPROVED BY THE PREVIOUSLY APPROVED MASTER DRAINAGE PLAN
- PREPARED BY MESA CONSULTING GROUP RUNOFF WILL BE CONVEYED TO THE PROPOSED EXPANDED DETENTION POND THAT REDUCES THE PEAK DISCHARGE RATE ENTERING ODELIA ROAD AS OUTLINED BY THE PREVIOUSLY APPROVED MASTER DRAINAGE PLAN, THUS REDUCING THE PEAK RATE OF
- THE IMPROVEMENTS SUPPORT THE GYM / PERFORMING ARTS BUILDING ADDITIONS AND OTHER CAMPUS IMPROVEMENTS CURRENTLY UNDER CONSTRUCTION; THESE IMPROVEMENTS ARE REQUIRED TO BE CONSTRUCTED TO SUPPORT THE PERMANENT CERTIFICATE OF OCCUPANCY FOR THE BUILDING ADDITIONS
- THERE ARE NO DPM DESIGN VARIANCES OR PUBLIC DRAINAGE EASEMENTS REQUIRED BY THIS DEVELOPMENT

CALCULATIONS

I. SITE CHARACTERISTICS

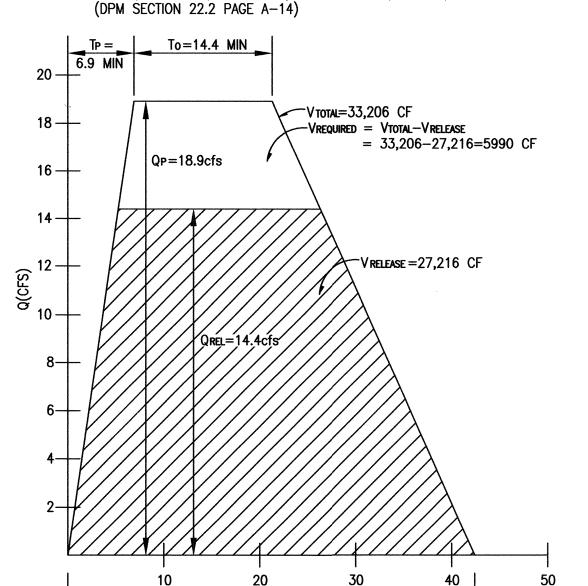


E. DEVELOPED LAND TREATMENTS

2. BASIN A1-D TREATMENT AREA (SF/AC)

16,455 / 0.38 42,545 / 0.98

- II. HYDROLOGY A. DEVELOPED CONDITIONS
- 1. BASIN A1-D a. VOLUME (NO CHANGE)
- Ew = (EAAA + EBAB + ECAC + EDAD)/ATEw = [(1.13*0.38)+(2.12*0.98)]/1.35 = 1.84 IN $V_{100} = (Ew/12)AT = 0.2081 AC-FT 9,070 CF$
- b. PEAK DISCHARGE (NO CHANGE)
- QP = QPA AA + QPBAB + QPCAC + QPDADQP = Q100 = (3.14*0.38)+(4.70*0.98) = 5.8 CFS
- c. INFLOW/STORAGE (TRAPEZOIDAL) HYDROGRAPH (PHASE 2) UPPER POND



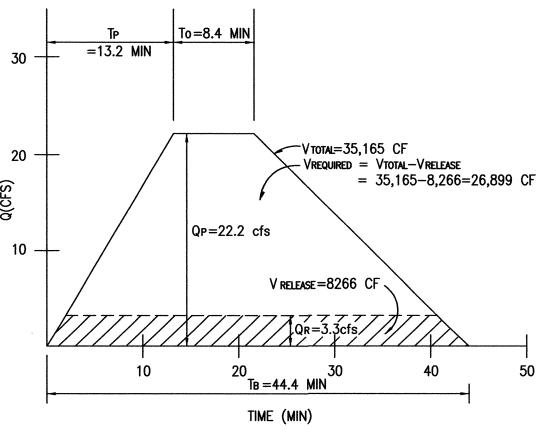
TIME (MIN) $T_B = [2.107*E*(AT/QP)] - [0.25*(AD/AT)] = 42.4 MIN$ $T_p = (0.7*Tc) + [(1.6 - (AD/AT))/12] = 6.9 \text{ MIN}$ $T_D = [0.25*(AD/AT)] = 14.4 MIN$

QP=Q100 (BASIN A1-A)+Q100 (BASIN A2-B)=18.9 CFS E=2.07 INTc=0.2 HRS=12MIN AT =AT (BASIN A1-A)+AT (BASIN A2-B)=4.08 AC AD = AD(BASIN A1 - A) + AD(BASIN A2 - B) = 391 AC

d. INFLOW/STORAGE (TRAPEZOIDAL) HYDROGRAPH (PHASE 2) - LOWER POND (DPM SECTION 22.2 PAGE A-14)

 $T_B = 42.4 MIN$

40



 $T_B = [2.107 * E * (AT/QP)] - [0.25 * (AD/AT)] = 0.74 HRS ~ 44.4 MIN$ $T_p = (0.7*T_c) + [(1.6 - (A_D/A_T))/12 = 0.22 \text{ HRS} \sim 13.2 \text{ MIN}]$ TD = [0.25*(AD/AT)] = 0.14 HRS ~8.4 MIN

QP=Q100 (A1-D, PHASE 2) +Q100 (A1-C) +Q100 (A1-B) +QREL UPPER POND E=1.69 IN Tc=12 MIN ~0.2 HRS (MINIMUM TIME) AT (A1-D)=1.35 AC AD (A1-D)=0.77 AC

d. VPOND (AVERAGE END METHOD; DEVELOPED PHASE 2)

ELEVATION	AREA	VOLUME	Σ VOLUME
14.5	0		
		568	568
15	2270		
		6643	7211
16	11016		
		12464	19675
17	13912		
		14752	34427
18	15592		

 $VPOND = \Sigma VOL = 568 + 7211 + 19675 = 34427 CF$ $V_R = 26.899 \text{ CF} < V_{POND} = 34.427 \text{ CF}$

C. COMPARISONS

1. BASIN A1-D a. VOLUME

- $\triangle V_{100} = 9,070 9,070 = 0 \text{ CF} \text{ (NO CHANGE)}$ b. PEAK DISCHARGE
- $\triangle Q100 = 5.8-5.8- = 0 \text{ CFS}$ (NO CHANGE) III. HYDRAULICS
- A. UPPER POND (BASIN A-1C) 1. STANDPIPE CAPACITY (WEIR EQUATION AT INLET) $Q = C P d^{2/3}$
- WHERE: C = 3.0 (CONSTANT) P = 6.28 FT
 - d = 1.0 FTTHEREFORE: Q = 18.8 CFS > Q release = 14.4 CFS
- 2. OUTLET PIPE CAPACITY a. ENTRANCE CONDITIONS - ORIFICE EQUATION - OUTLET CONTROL
 - Q = CA + 2ghLET: Q = 14.4 CFS (MAX DISCHARGE)
 - C = 0.6THEREFORE: A = 1.43 SF = πr^2
 - r = 8"; USE 16" DIA. ORIFICE b. PIPE (NORMAL) FLOW - MANNING'S EQUATION
- 18" DIAMETER STORM DRAIN LET: D=18" S = 0.0123
- N = 0.013THEREFORE: Q_{CAPACITY} = 11.7 CFS; PRESSURE FLOW GOVERNS c. PIPE (PRESSURE) FLOW — HAZEN WILLIAMS EQUATION
- 18" STORM DRAIN LET: $P_1 = 1.9$ PSI (4.4VF OF WATER @ 0.44 PSI/VF) $P_2 = 0 PSI$ S = 0.0123
- C = 135.0THEREFORE: Q_{CAPACITY} = 34.9 CFS; > Q_{RELEASE} = 14.4 CFS
- B. LOWER POND (BASIN A-1D) 1. SUBMERGED STANDPIPE CAPACITY (ORIFICE EQUATION)
 - Q = CA + 2ghLET: C = 0.6
 - A = 3.1 SF (24" DIAMETER PIPE)H = OVERFLOW ELEV. - GRATE ÉLEV. = 18.0-15.6=2.4THEREFORE: Q = 23.1 CFS
- 2. OUTLET PIPE CAPACITY a. ENTRANCE CONDITIONS - ORIFICE EQUATION
 - Q = CA + 2qhLET: C = 0.6 $A = 0.35 \text{ SF } (8^{\circ} \text{ DIAMETER PIPE})$
 - H = 4.34'THEREFORE: Q = 3.5 CFS > ALLOWABLE DISCHARGE = 3.3 CFS b. ORIFICE PLATE CALCULATIONS—ORIFICE EQUATION (OUTLET CONTROL) Q = CA + 2qh
 - LET: Q = 3.3 CFS (MAX. DISCHARGE) H = 4.34'
 - THEREFORE: A = 0.33 SF: USE 7.75" DIAMETER ORIFICE PLATE ON DISCHARGE PIPE.
 - c. PIPE (NORMAL) FLOW MANNING'S EQUATION 8" DIAMETER STORM DRAIN
 - LET: D = 8" S = 0.0282
 - N = 0.013THEREFORE: QCAPACITY = 2.0 CFS < Q RELEASE=3.3 CFS PRESSURE FLOW GOVERNS
 - d. PIPE (PRESSURE) FLOW HAZEN—WILLIAMS EQUATION 8" DIAMETER STORM DRAIN
 - LET: $P_1 = 1.9 PSI (4.3 VF OF WATER @ 0.44 PSI/VF)$ $P_2 = 0 PSI$ S = 0.0282
 - C = 135.0THEREFORE: $Q_{CAPACITY} = 6.3 \text{ CFS} > Q_{DISCHARGE} = 3.3 \text{ CFS}$ e. SPILLWAY CAPACITY - WEIR EQUATION FROM HAESTAD METHODS 6.0
 - LET: DEPTH = 1.0 FT DISCHARGE COEFFICIENT = 3.05 CREST LENGTH = 10.0 FT
 - THEREFORE: Q CAPACITY = $30.5 \text{ CFS} > Q_{100} = 22.2 \text{ CFS}$ f. SPILLWAY CAPACITY - OPEN CHANNEL FROM HAESTAD METHODS FLOW MASTER 6.0 - MANNING'S EQUATION
 - LET: Q = 22.2 CFS S = 0.2128 (4.7:1) $W = 10.0 \, \text{FT}$
 - H = 0.013THEREFORE: D = 0.11 FT << 1.0 FT = CHANNEL DEPTH q. HYDRAULIC JUMP CALCULATION
 - LET: Q = 22.2 CFS $= \frac{22.2}{\text{(DEPTH)(WIDTH)}} = \frac{22.2}{(0.81')(10')} = 2.7FT/S$

ENERGY EQUATION:

- $\frac{1}{10}^{2} + y_1 + Z = \frac{V_2^2}{25} + y_2$
- LET: $V_1 = 2.7 \text{ FT/S}$ $\frac{V_1^2}{2g} = \frac{(2.7)^2}{2(32.2)} = 0.11 \text{ FT}$
- $y_1 = 0.81$ FT (DEPTH AT SPILLWAY) \dot{Z} = 10 ft (vèrtical drop from spillway TO CHANNEL SLOPE CHANGE)
- THEREFORE: $(0.11) + 0.81 + 10 = \frac{Q}{(10y_2)^2 (64.4)} + y$ $10.09 = 0.077/y_2^2 + y_2$
 - $y_2 = 1.03 \text{ FT} = \text{DEPTH AT JUMP}$

SURVEY NOTE

THIS IS NOT A BOUNDARY SURVEY: TOPOGRAPHIC INFORMATION IS BASED UPON A PARTIAL TOPOGRAPHIC SURVEY PREPARED BY HIGH MESA CONSULTING GROUP, NMPS NO. 11184, DATED 11/15/2007. SUPPLEMENTAL INFORMATION SHOWN IS BASED UPON RECORD DRAWINGS PREPARED BY HIGH MESA CONSULTING GROUP, CERTIFIED 03/09/09 BY ENGINEER ON RECORD, NMPE 8547

BENCHMARKS

PROJECT BENCHMARK

A NMSHC BRASS DISK STAMPED "STA I-25-30" SET IN TOP OF A CONCRETE POST 0.2' ABOVE GROUND LOCATED ADJACENT TO THE NORTHWEST INTERSECTION OF GIBSON BOULEVARD AND THE 1-25 BRIDGE INTERCHANGE. ELEVATION = 5041.30 FEET (NAVD 88)

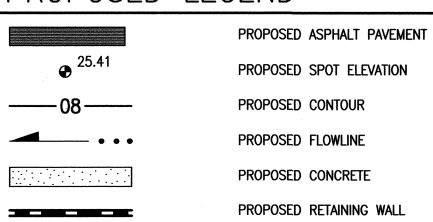
T.B.M. #1

A P.K. NAIL AND SHINER AS SHOWN ON SHEETS 3 & 5. ELEVATION = 5026.94 FEET (NAVD 88)

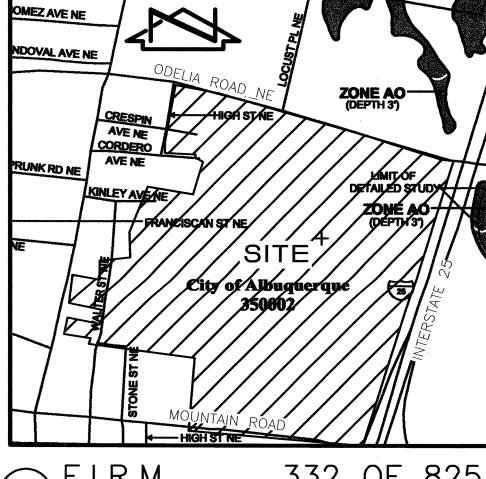
LEGAL DESCRIPTION

A PORTION OF ALBUQUERQUE HIGH SCHOOL, UNPLATTED.

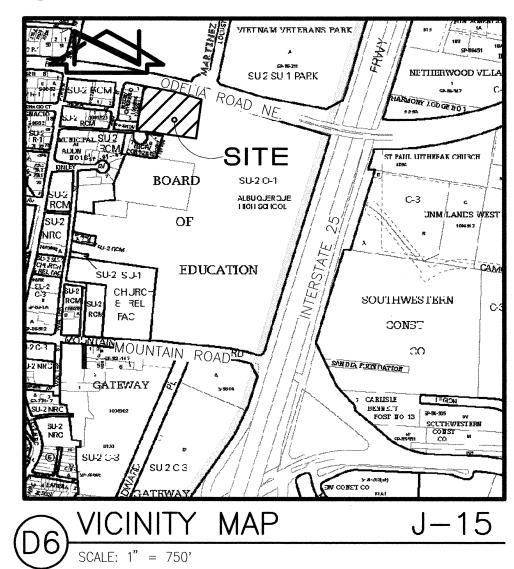
PROPOSED LEGEND



HIGH POINT



332 OF 825



RECORD DRAWING

EXISTING LEGEND

FOOTBALL GOAL POST

FIRE HYDRANT

łS	ALBUQUERQUE HIGH SCHOOL SIGN	FL	FLOWLINE
-	AREA LIGHT	FLC `	FIRELINE CONNE
IT .	ANTENNA	FRL	FIRELINE
•	ASPHALT PATH	G/PM	GAS BY PAINT N
PD	ASPHALT PAD	G/RCD	GAS BY RECORE
₹	ASPHALT RAMP	GA	GATE
RD	ASPHALT RUNDOWN	GM	GAS METER
SPH -	ASPHALT	GPR	GAS PRESSURE
SP .	BASKETBALL GOAL POST	GR	GRAVEL
_DG	BUILDING	GRC	GRATE COVERED
)H	BUILDING OVERHANG	GS	GAS SERVICE
	COMMUNICATION	GW	GUY WIRE
k G	CURB AND GUTTER	HDP	HIGH DENSITY P
3	CONCRETE BARRIER	INV	INVERT
3 C CL	CONCRETE CURB	MBX	METAL BOX
CL	CONCRETE BUILDING COLUMN	MCV	METER CAN WITI
	CAST IRON PIPE	MED	MEDIAN
_	CENTERLINE	MH	MANHOLE
_ _D	CENTERLINE OF DOOR	MHR	METAL HANDRAIL
_DD	CENTERLINE OF DOUBLE DOOR	MLP	METAL LIGHT PO
_F	CHAINLINK FENCE	MR	METAL RAMP
/I P	CORRUGATED METAL PIPE	MRS	METAL RAMP WI
VIS	CONCRETE MOW STRIP	MS	METAL STEPS
V U	CONCRETE MASONRY UNIT WALL	MWS	METAL AND WOO
ONC	CONCRETE	OHC(1)	OVERHEAD COMI
PD	CONCRETE PAD	OHE(1)	OVERHEAD ELEC
₹	CONCRETE RAMP	OHM`	OVERHEAD ELEC
RD	CONCRETE RUNDOWN	OSP	CONCRETE ENCA
SM.	CONCRETE RETAINING WALL	OTC	OVERFLOW THRO
3	CONCRETE STEPS	PB	PARKING BUMPE
SHR	CONCRETE STEPS WITH METAL HANDRAIL	PG	PIPE GATE
SW	CONCRETE SIDEWALK	PORT	PORTABLE
TC	CONCRETE TRASH CAN	PT	PIPE TOWER
V/RCD	CABLE TELEVISION BY RECORD DRAWING	PVC	POLYVINYL CHLO
VR	CABLE TELEVISION	RB	ROCK BASE
JB	CHIN-UP BARS	RCD	RECORD DRAWIN
N	CONCRETE WALL	RD	ROOF DRAIN
00	DOUBLE SANITARY SEWER	RRT	RAILROAD TIE
GA	DOUBLE GATE	SAS	SANITARY
MC	DOMESTIC	SAS/PM	SANITARY SEWER
/PM	ELECTRIC BY PAINT MARK	SB	SPEED BUMP
/RCD	ELECTRIC BY RECORD DRAWING	SCB	SCORE BOARD
١	EDGE OF ASPHALT	SCT	SPRINKLER CON
CB	ELECTRIC CABINET	SD	STORM DRAIN
	ELECTRIC CONDUIT	SD/RCD	STORM DRAIN B
PB	ELECTRIC PULLBOX	SDP	SERVICE DROP
-	ELECTRIC TRANSFORMER	SGP	STEEL GUARD P
/	ELECTRIC VAULT	SHR	STEEL HANDRAIL
(IST	EXISTING	SP	STEEL POLE
	FINISHED FLOOR	SQG	SQUARE GRATE
.			

SSVB

SMALL SPRINKLER VALVE BOX

ELOWI INE NECTION STR SVB RD DRAWING SWC T/RCD E REGULATOR TCB TCO POLYETHYLENE PIPE ITH VALVE UGT VCP POLE WITH STEPS OOD STEPS MMUNICATION (# OF LINES) WHB ECTRIC (# OF LINES) ECTRIC MAST WL/RCD CASED OVERFLOW STAND PIPE WMB ROUGH CURB WPPC PER WSD ILORIDE PIPE X-WALK ER BY PAINT MARK 0 NTROL TIMER BY RECORD DRAWING **POST**

2

STANDARD STORAGE SPRINKLER VALVE BOX SIDEWALK SIDEWALK CULVERT TELEPHONE BY RECORD DRAWING TOP OF ASPHALT TOP OF CURB TRAFFIC CONTROL BOX TOP OF CONCRETE TELEPHONE RISER TRAFFIC SIGN TRAFFIC SIGNAL TRAFFIC SIGNAL TRIPE PER TOP OF WALL TYPICAL UNDERGROUND ELECTRIC BY PAINT MARK UNDERGROUND TELEPHONE BY PAINT MARK VITRIFIED CLAY PIPE VALLEY GUTTER VERTICAL TIMBER WHEELCHAIR RAMP WATER FAUCET WOOD GUARD POST WATER HOT BOX WATERLINE WATERLINE BY RECORD DRAWING WATER METER BOX WOOD POWER POLE WOOD POWER POLE WITH CONDUIT WOOD STEPS WOOD SHED WATER VAULT WATER VALVE BOX PAINTED CROSSWALK CONIFEROUS TREE DECIDUOUS TREE

GROUP OF TREES

UTILITY MARKER

EXISTING CONTOUR

EXISTING FIRE HYDRANT

EXISTING GATE VALVE

EXISTING FLOWLINE ELEVATION

SHRUB

 \bowtie

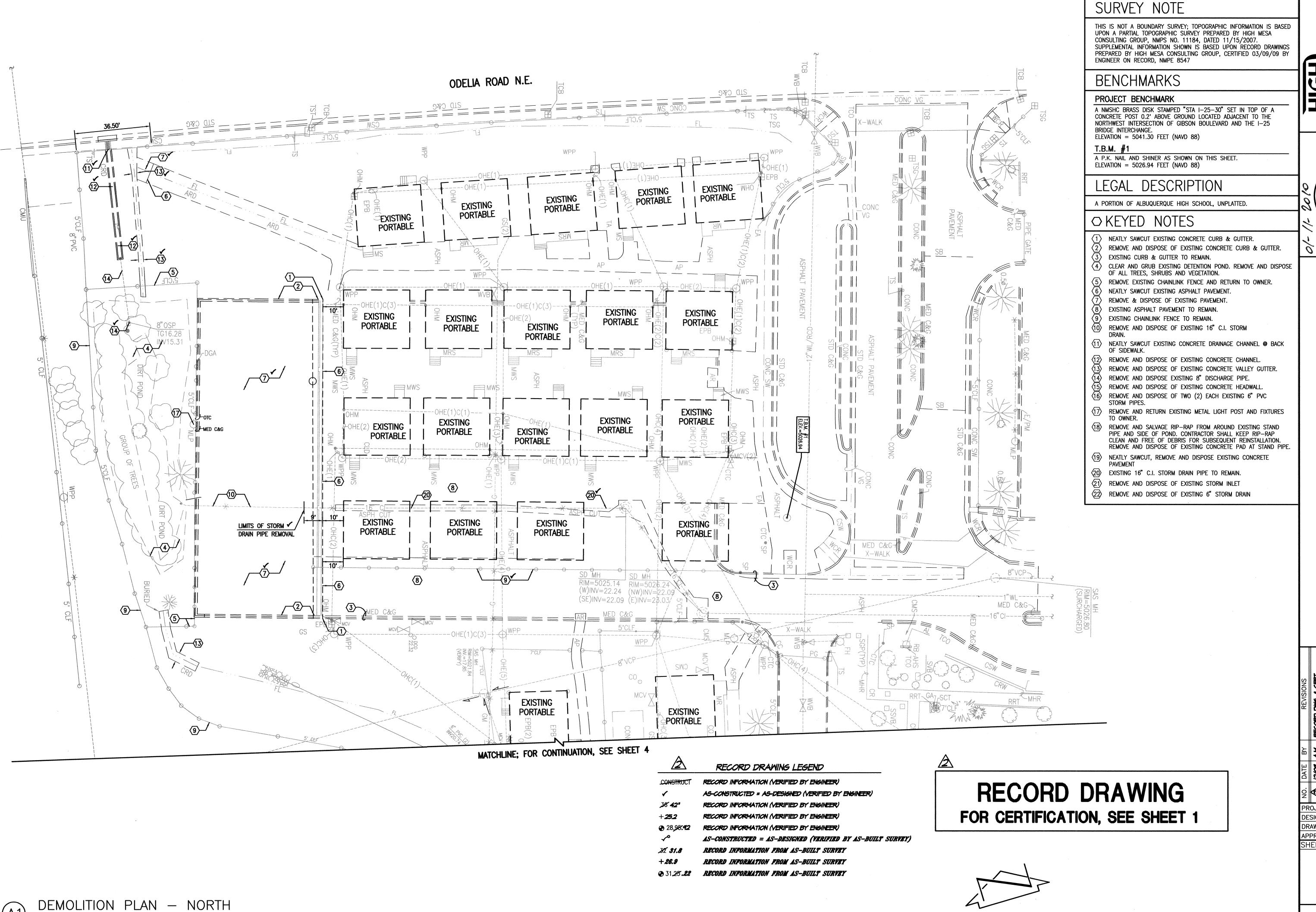
EN ĒM 0 0 6 \mathbf{O} (1) C O () DRAI Q

PROJECT No. 2007.183.7 G.R.B. DESIGNED BY DRAWN BY J.Y.R. J.G.M. APPROVED BY

DRAINAGE PLAN CALCULATIONS. EXPANDED LEGEND VICINITY MAP. AND F.I.R.M.

SHEET TITL

C - 302SHEET 2 OF 14



DRAINA

0

PROJECT No. 2007.183.7

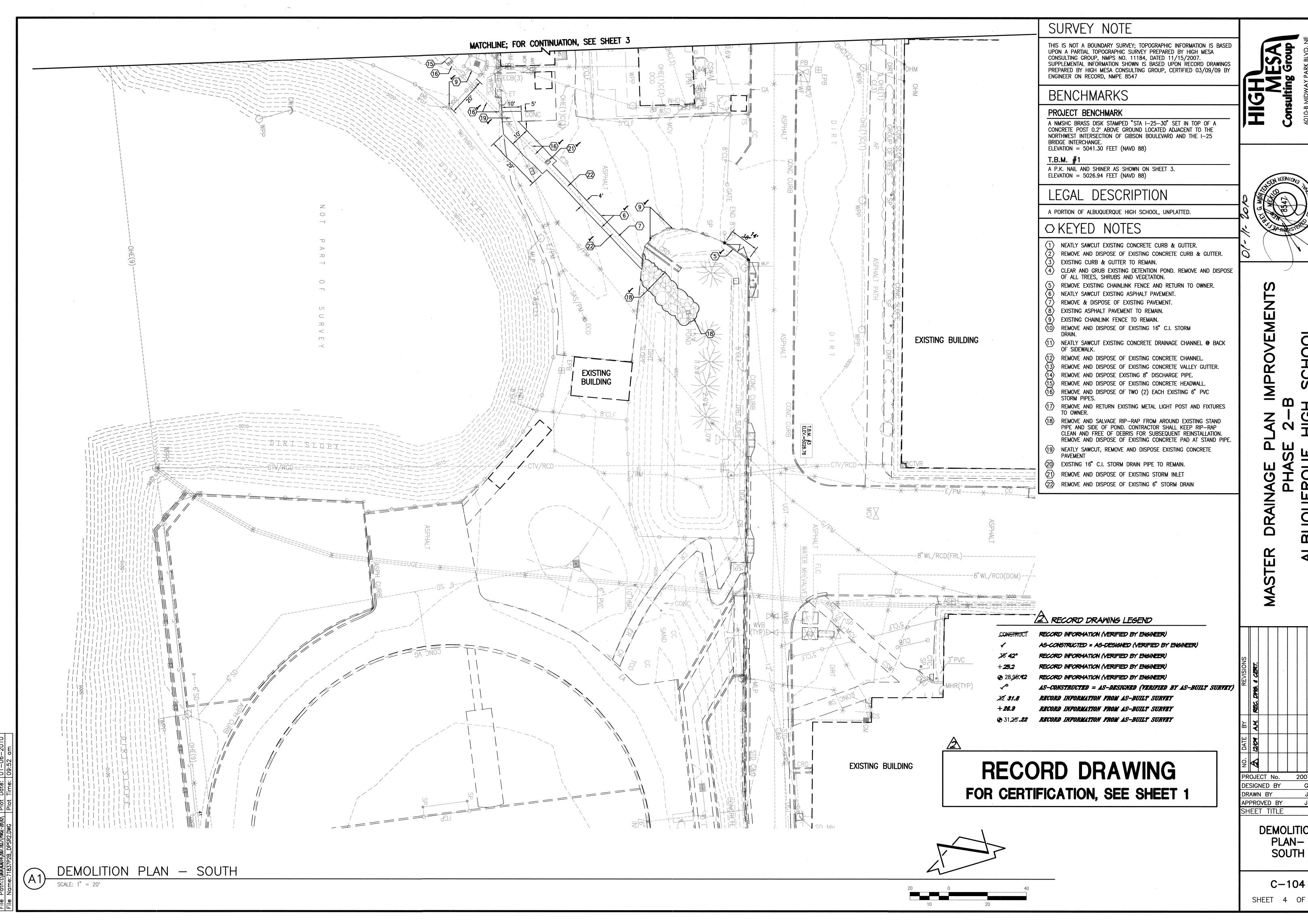
DESIGNED BY G.R.B. DRAWN BY J.Y.R. APPROVED BY J.G.M.

SHEET TITLE DEMOLITION

PLAN-NORTH

C - 103SHEET 3 OF 14

th:E\MIN\AWDI4\2007.1837P2B_DPNR2.DWG Plot Time: 09:51 am





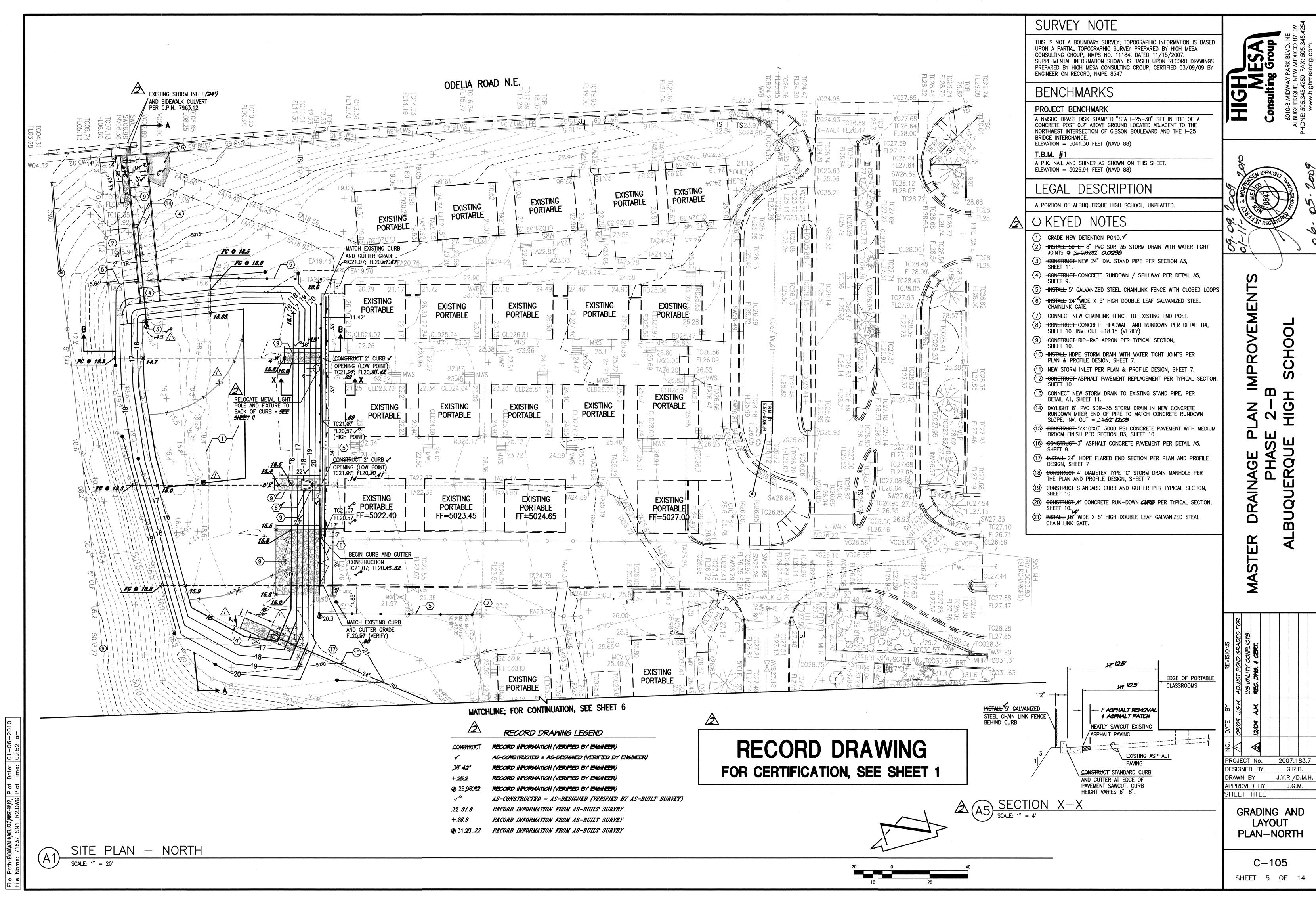
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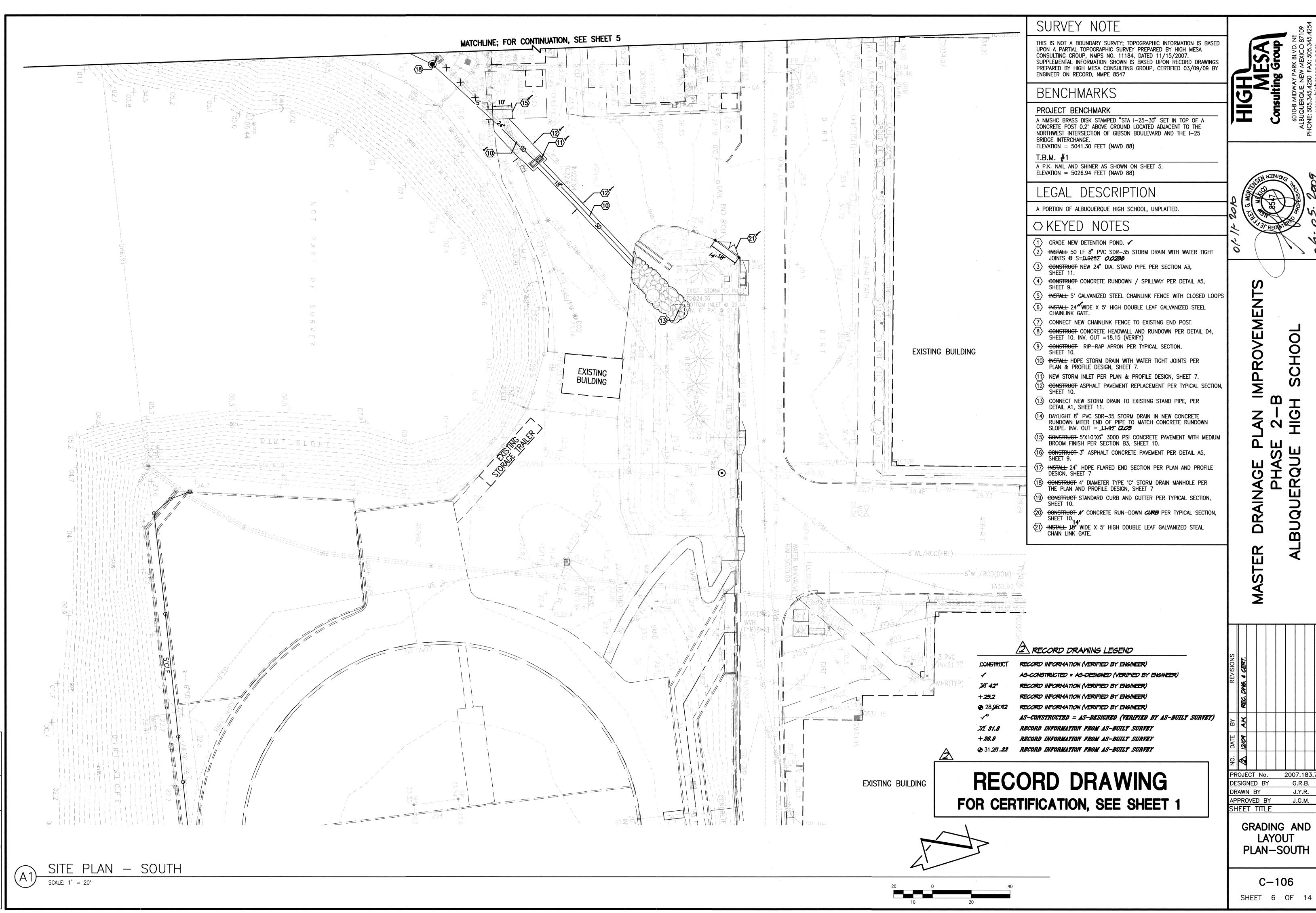
J.G.M.

DEMOLITION PLAN-

C-104

SHEET 4 OF 14



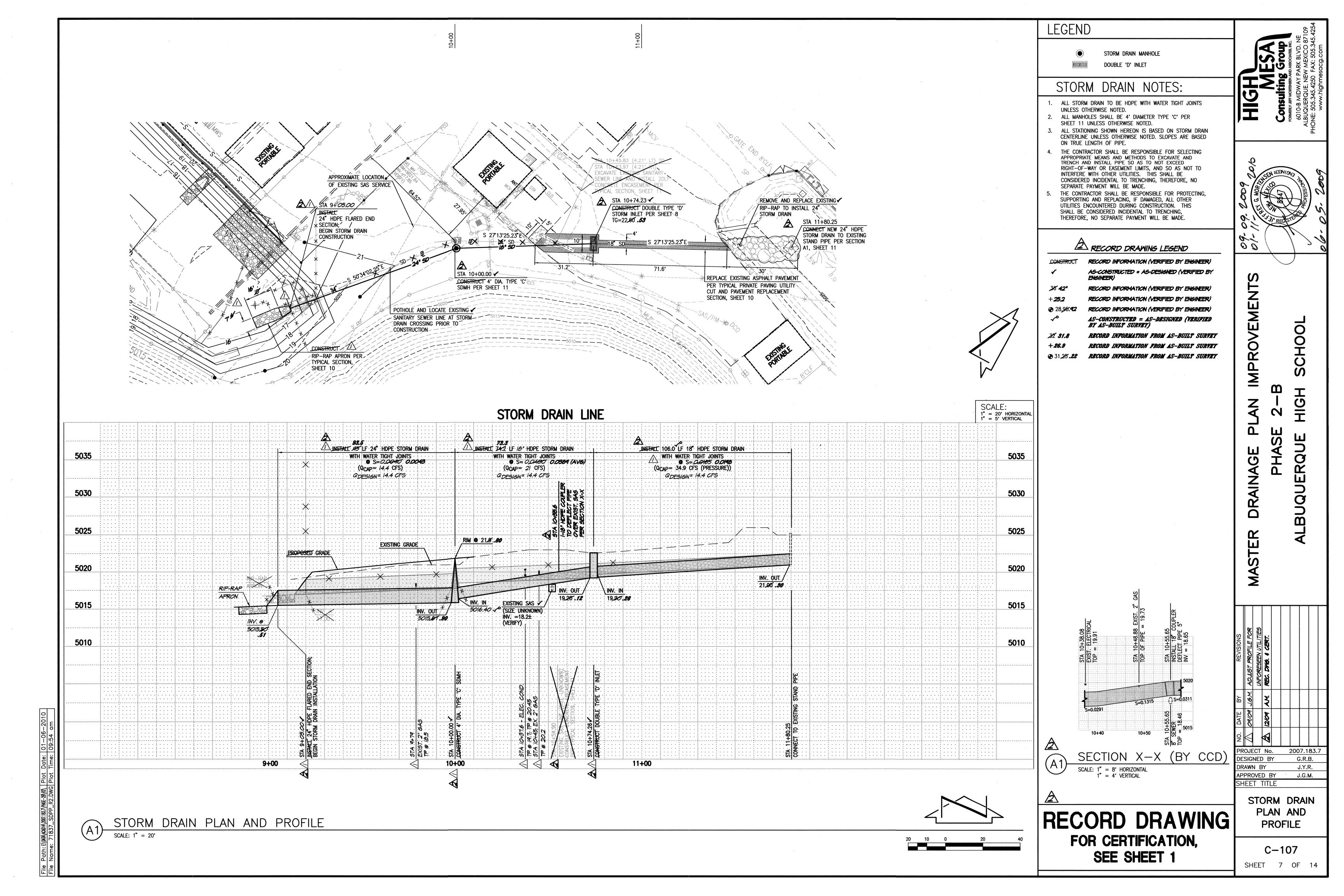


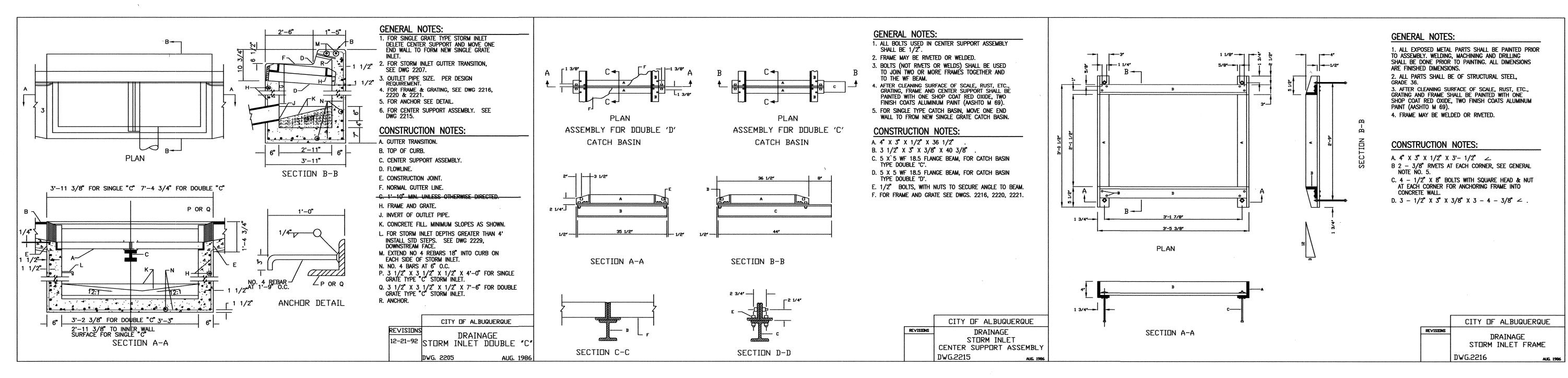
CHO DRAINAC PF

J.G.M.

GRADING AND LAYOUT PLAN-SOUTH

C-106

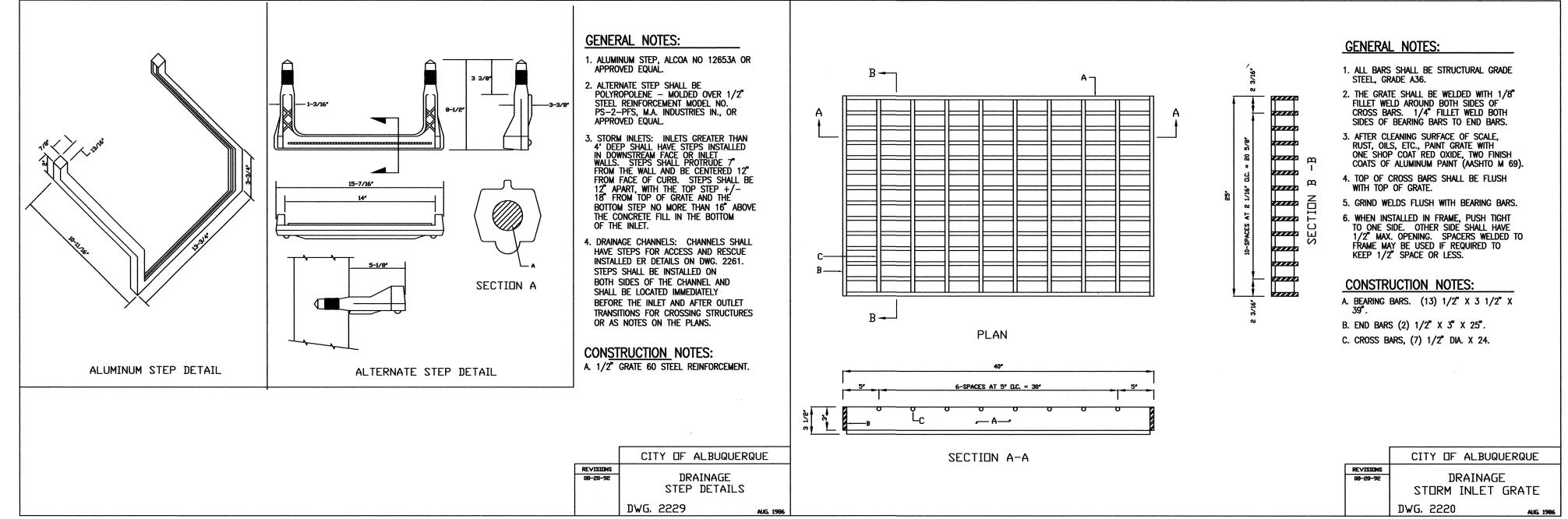




C1 DRAINAGE STORM INLET DOUBLE "C"

DRAINAGE STORM INLET CENTER SUPPORT ASSEMBLY
N.T.S.

C5 DRAINAGE STORM INLET FRAME



DRAINAGE STEP DETAILS

N.T.S.

DRAINAGE STORM INLET

RECORD DRAWING

HIGH MESA Consulting Group



DRAINAGE PLAN IMPROVEMENTS
PHASE 2-B
3UQUERQUE HIGH SCHOOL

PROJECT No. 2007.183.7
DESIGNED BY G.R.B.
DRAWN BY J.Y.R.

DRAWN BY J.Y.R.

APPROVED BY J.G.M.

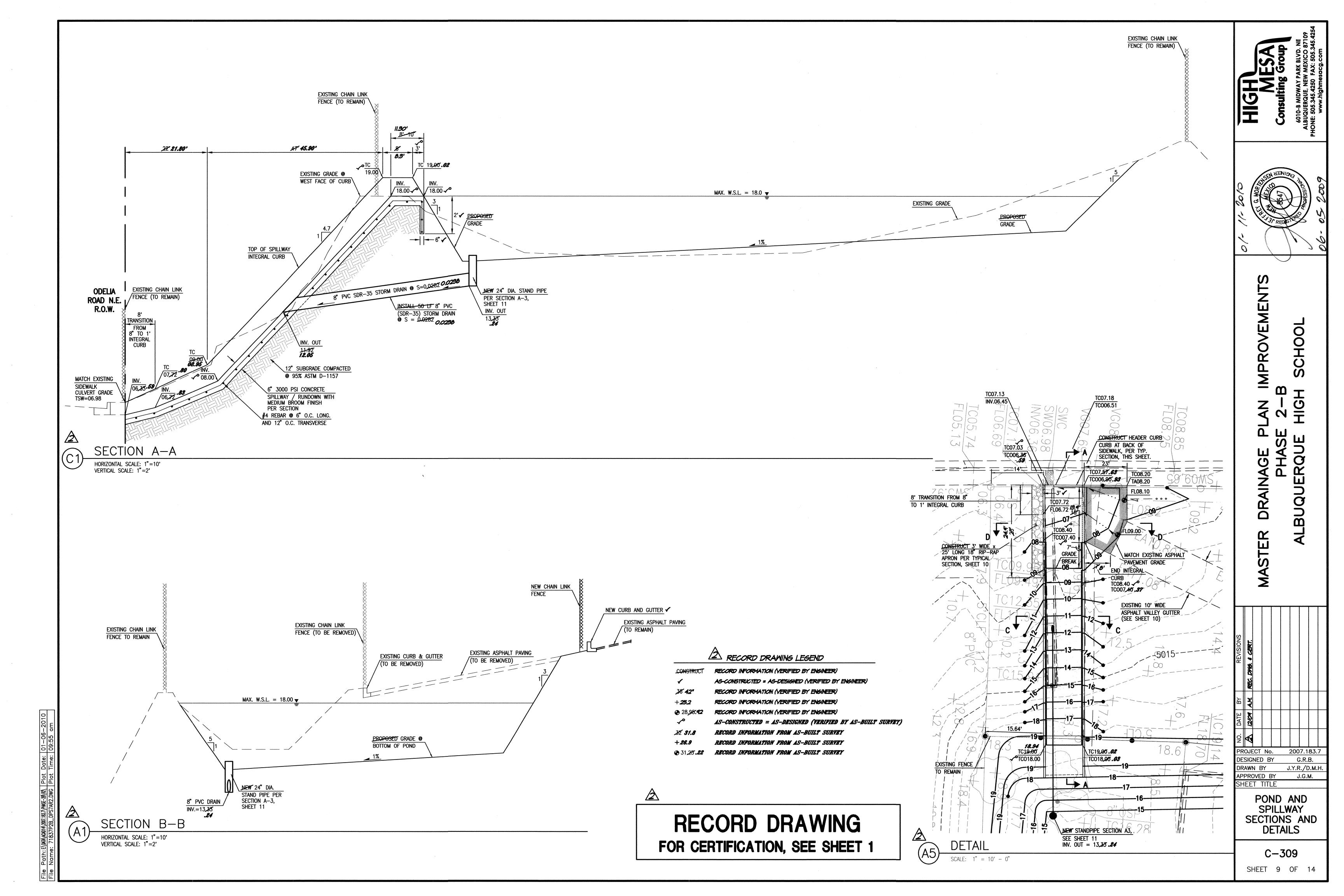
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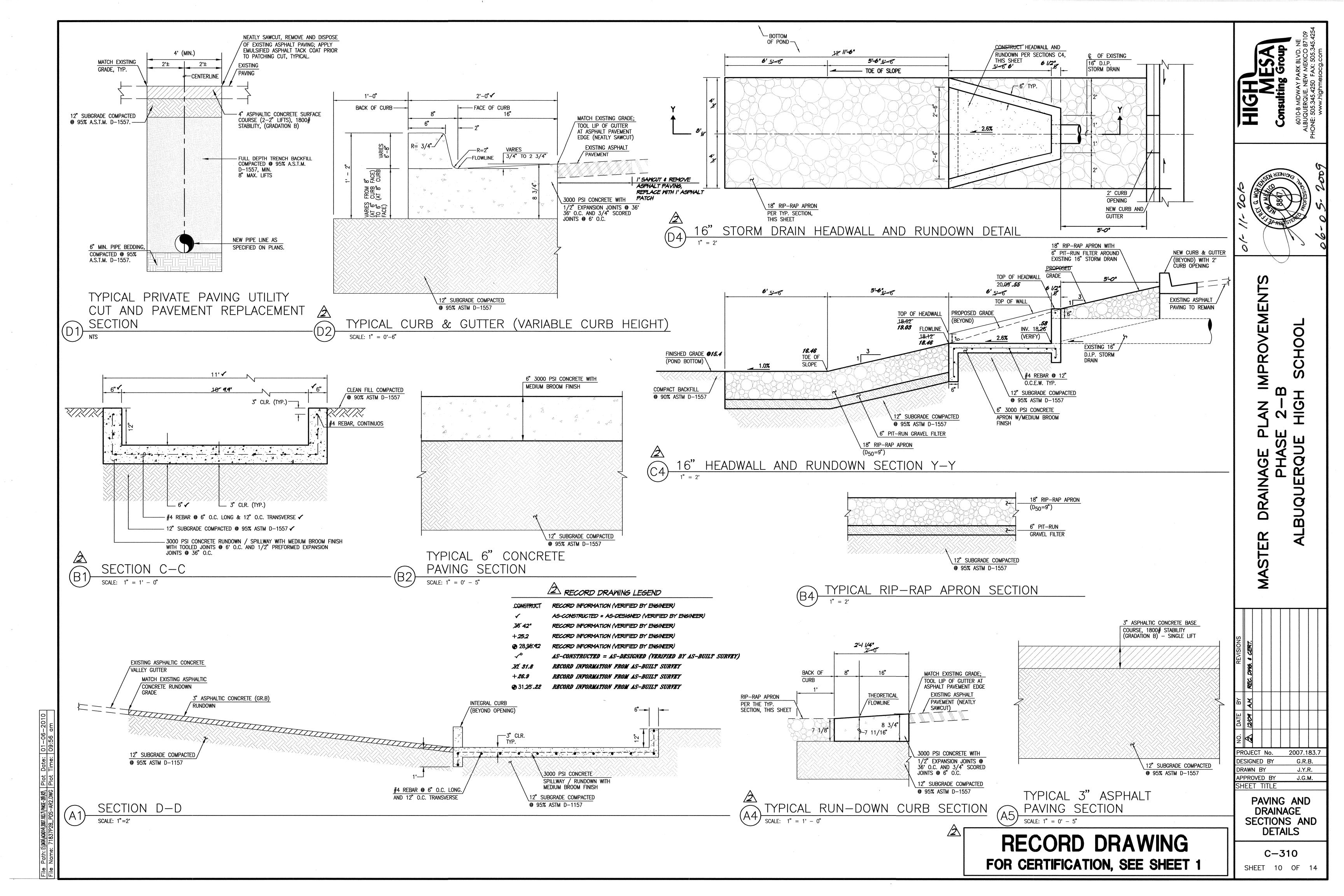
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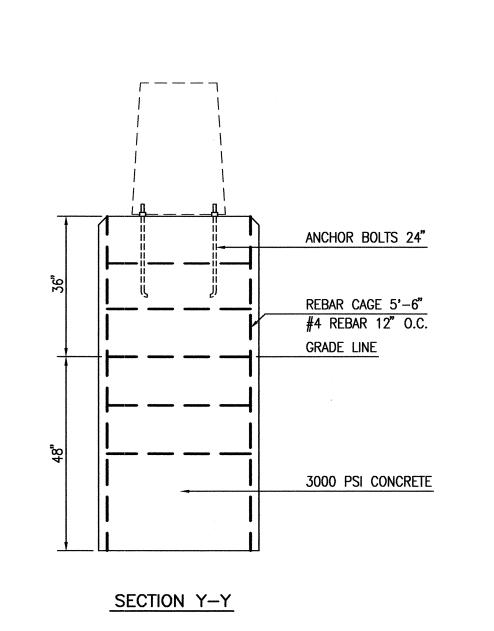
SECTIONS AND

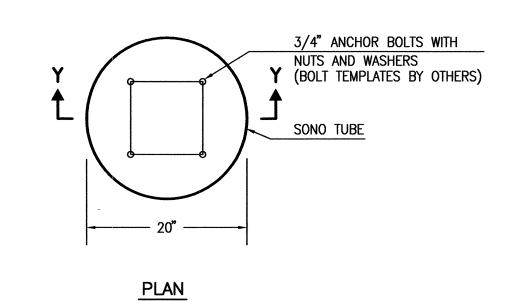
DETAILS

C-308SHEET 8 OF 14



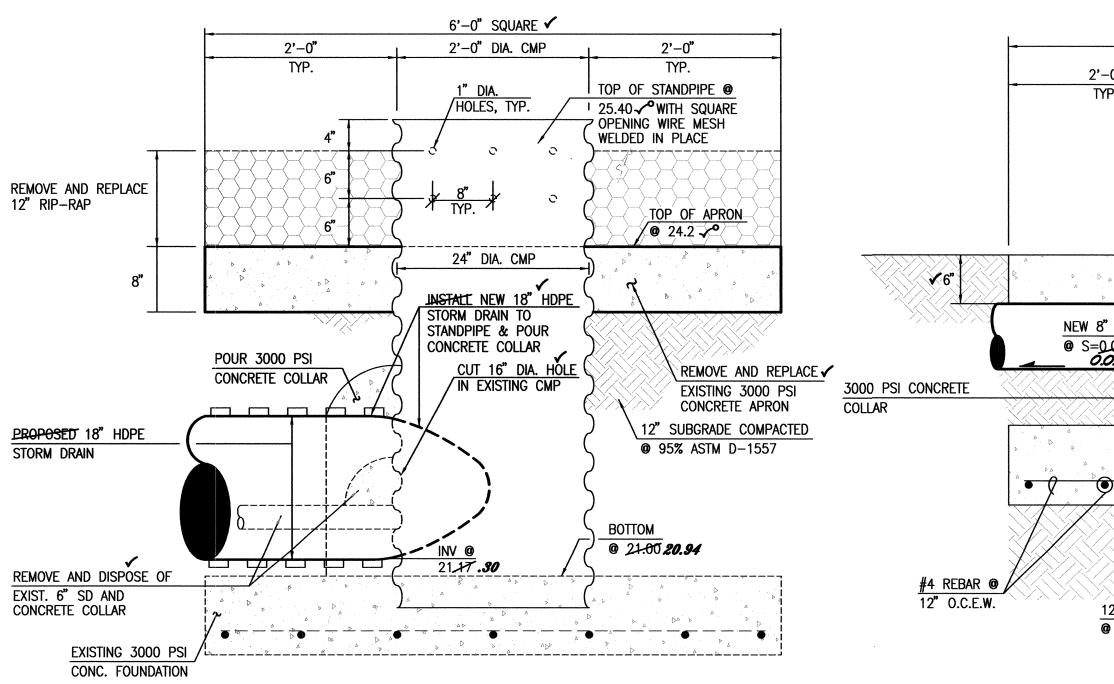


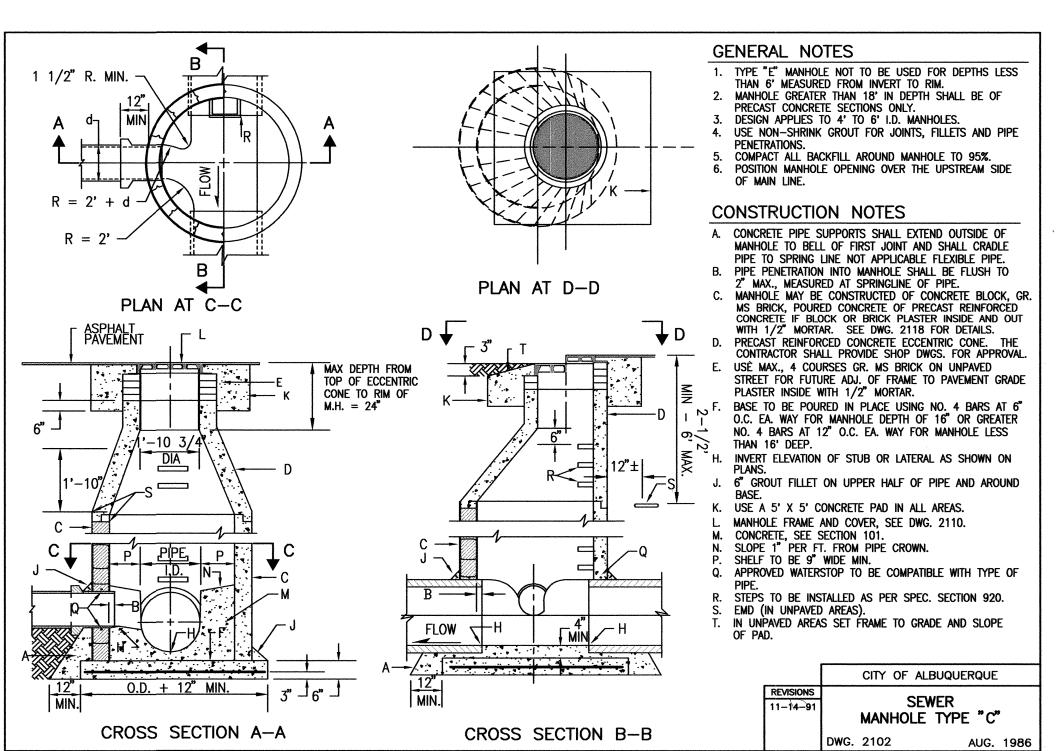




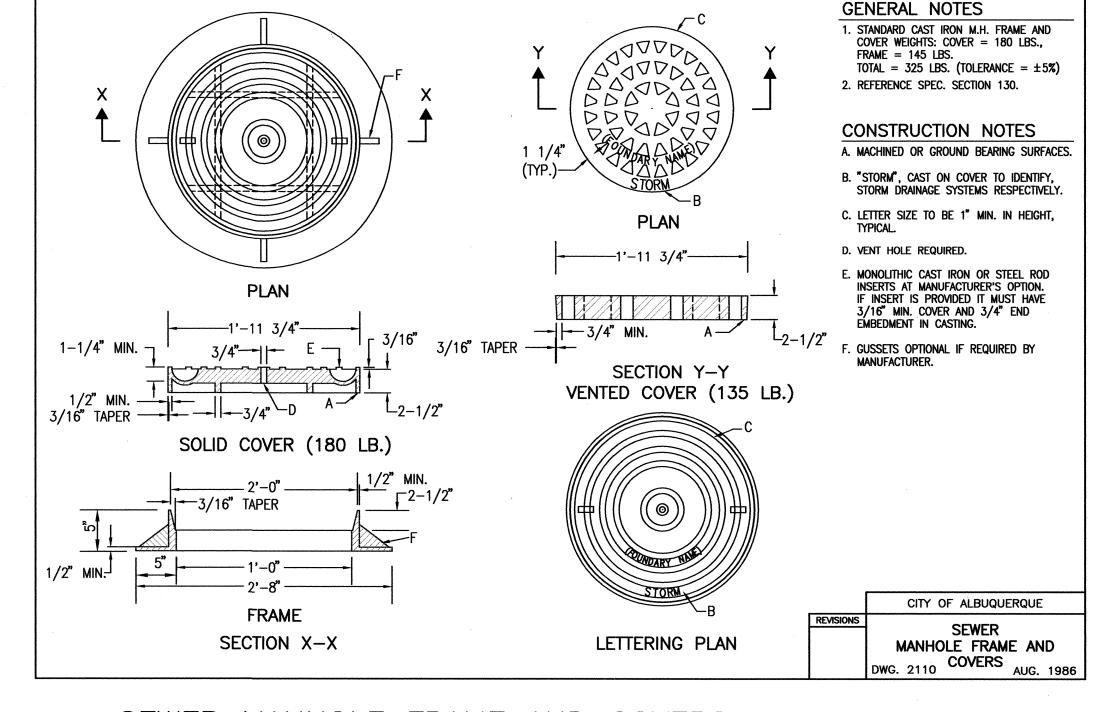
EXISTING STANDPIPE SECTION (@ UPPER POND)





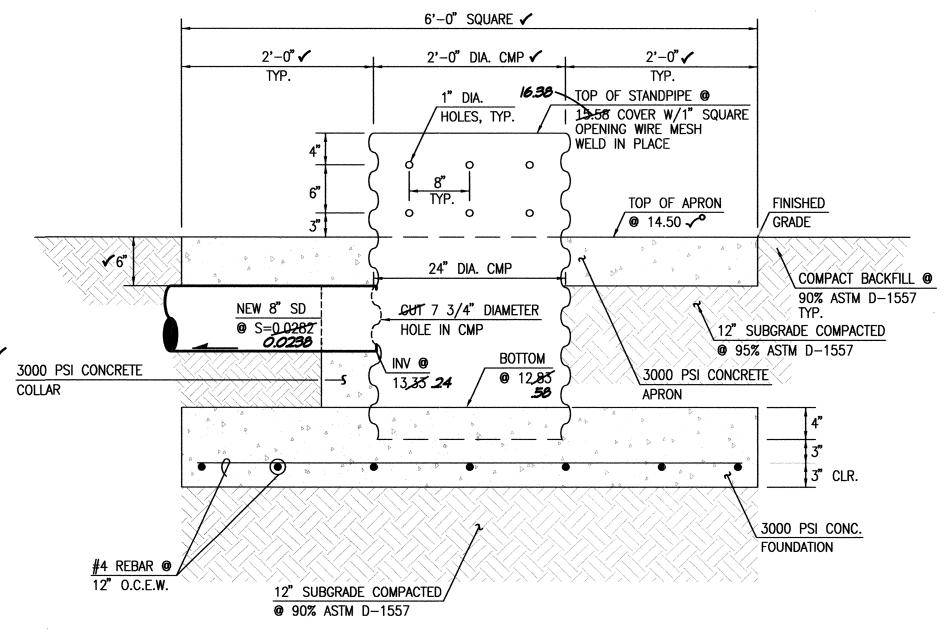




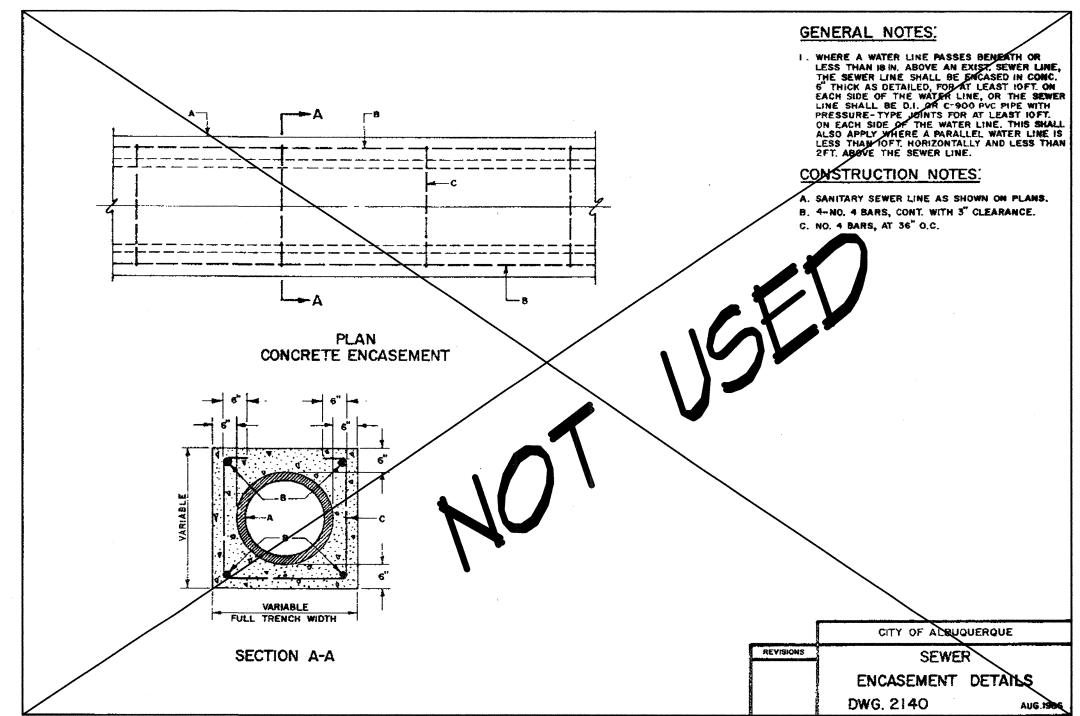


SEWER MANHOLE FRAME AND COVERS NOT TO SCALE

2 RECORD DRAWING LEGEND RECORD INFORMATION (VERIFIED BY ENGINEER) AS-CONSTRUCTED = AS-DESIGNED (VERIFIED BY ENGINEER) RECORD INFORMATION (VERIFIED BY ENGINEER) RECORD INFORMATION (VERIFIED BY ENGINEER) RECORD INFORMATION (VERIFIED BY ENGINEER) AS-CONSTRUCTED = AS-DESIGNED (VERIFIED BY AS-BUILT SURVEY) RECORD INFORMATION FROM AS-BUILT SURVEY RECORD INFORMATION FROM AS-BUILT SURVEY ◆ 31,25.22 RECORD INFORMATION FROM AS-BUILT SURVEY







ENCASEMENT SECTION

RECORD DRAWING FOR CERTIFICATION, SEE SHEET 1

O 0 0 ()

DRAINA

2007.183.7 PROJECT No. G.R.B. DESIGNED BY

APPROVED BY J.G.M. POND AND **SPILLWAY** SECTIONS AND

J.Y.R./D.M.H

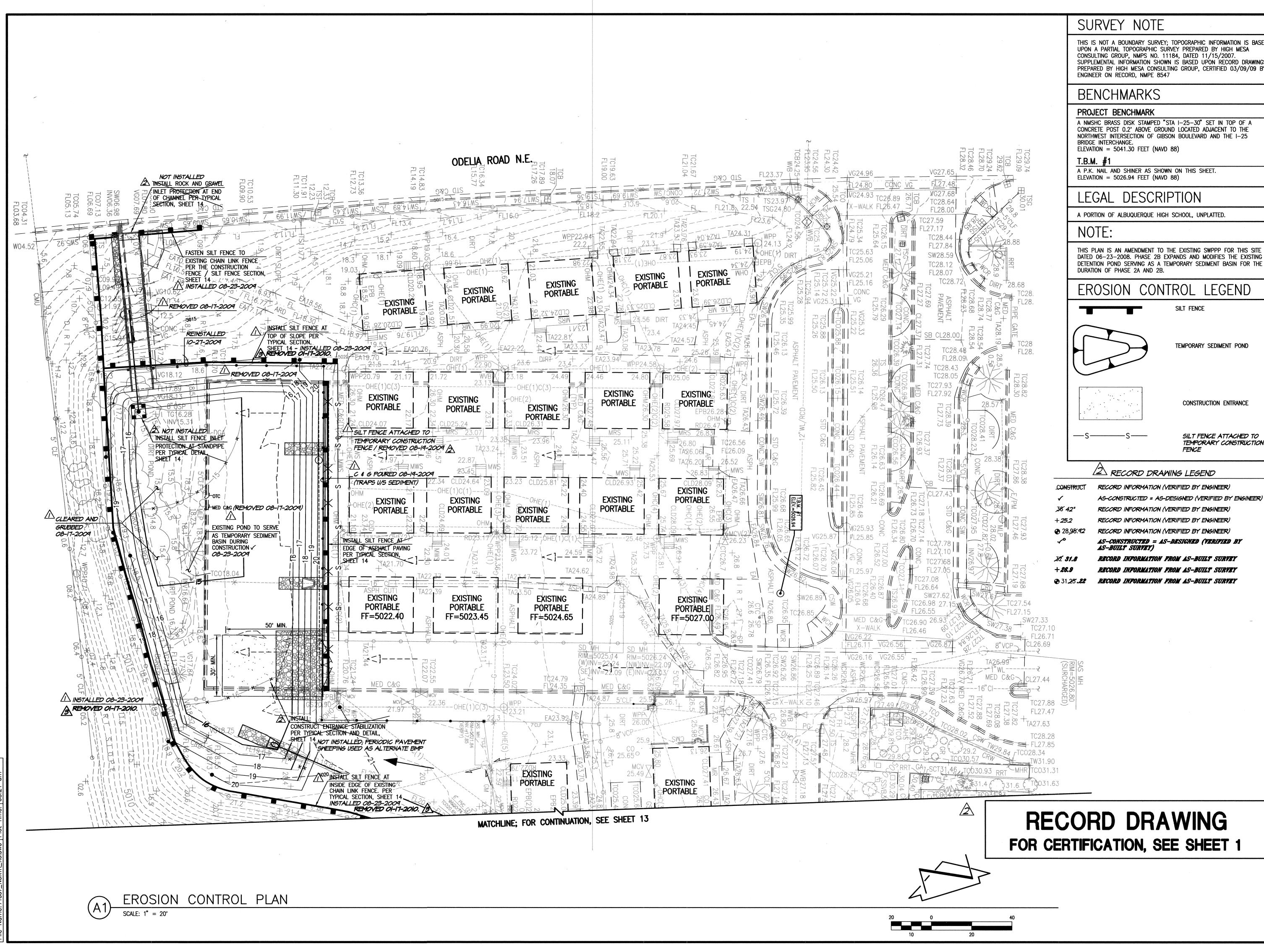
DRAWN BY

C - 311

DETAILS

SHEET 11 OF 14

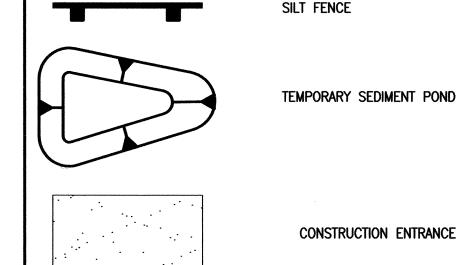
File Path: E\MIN\MXVIA\2007.183.7\PHNSE-28\RY\ Plot Date: 12-28-2009 File Name: 71837P2B_PSDR2.DWG Plot Time: 08:23 am



UPON A PARTIAL TOPOGRAPHIC SURVEY PREPARED BY HIGH MESA SUPPLEMENTAL INFORMATION SHOWN IS BASED UPON RECORD DRAWINGS PREPARED BY HIGH MESA CONSULTING GROUP, CERTIFIED 03/09/09 BY

A NMSHC BRASS DISK STAMPED "STA I-25-30" SET IN TOP OF A CONCRETE POST 0.2' ABOVE GROUND LOCATED ADJACENT TO THE NORTHWEST INTERSECTION OF GIBSON BOULEVARD AND THE 1-25

THIS PLAN IS AN AMENDMENT TO THE EXISTING SWPPP FOR THIS SITE DETENTION POND SERVING AS A TEMPORARY SEDIMENT BASIN FOR THE

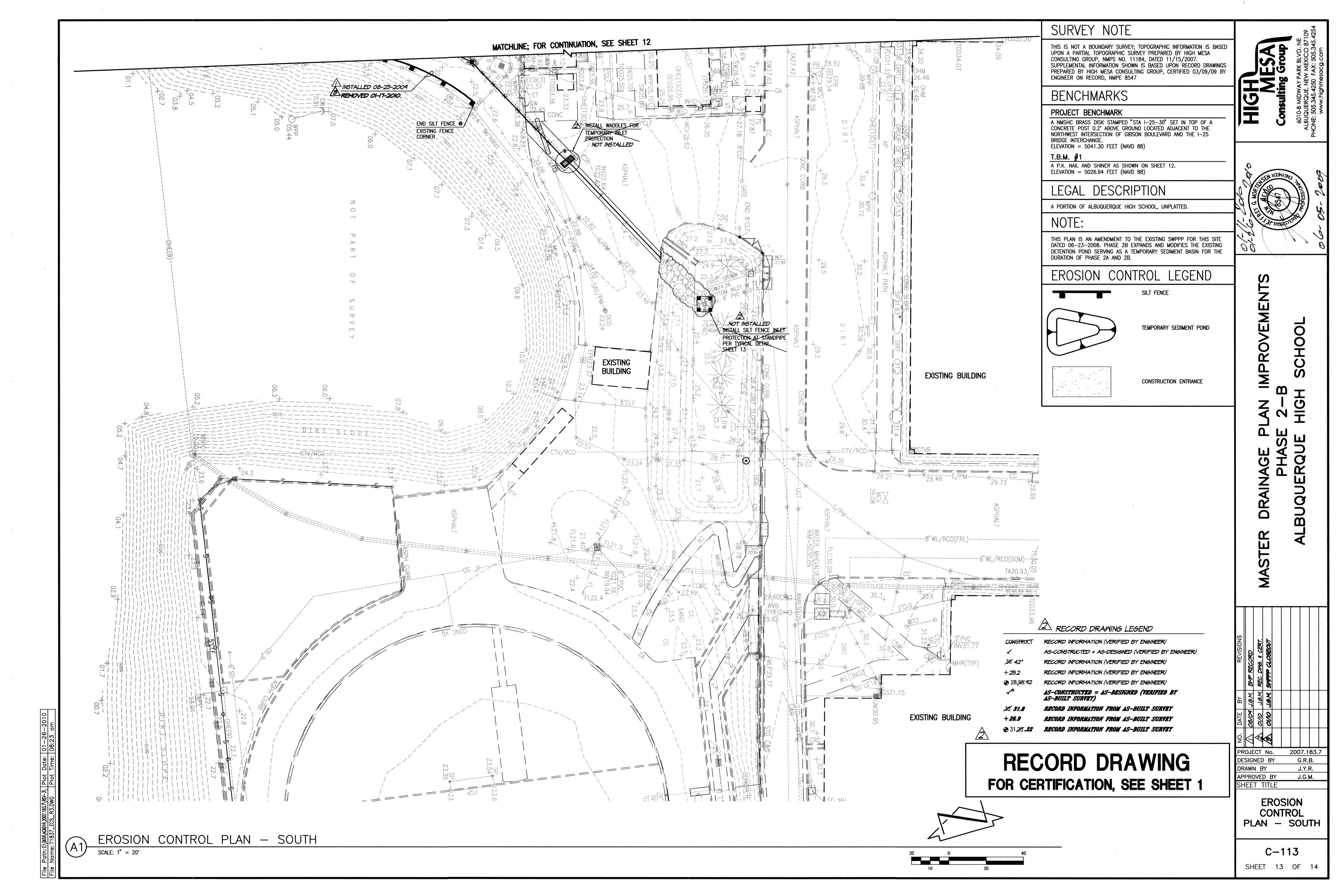


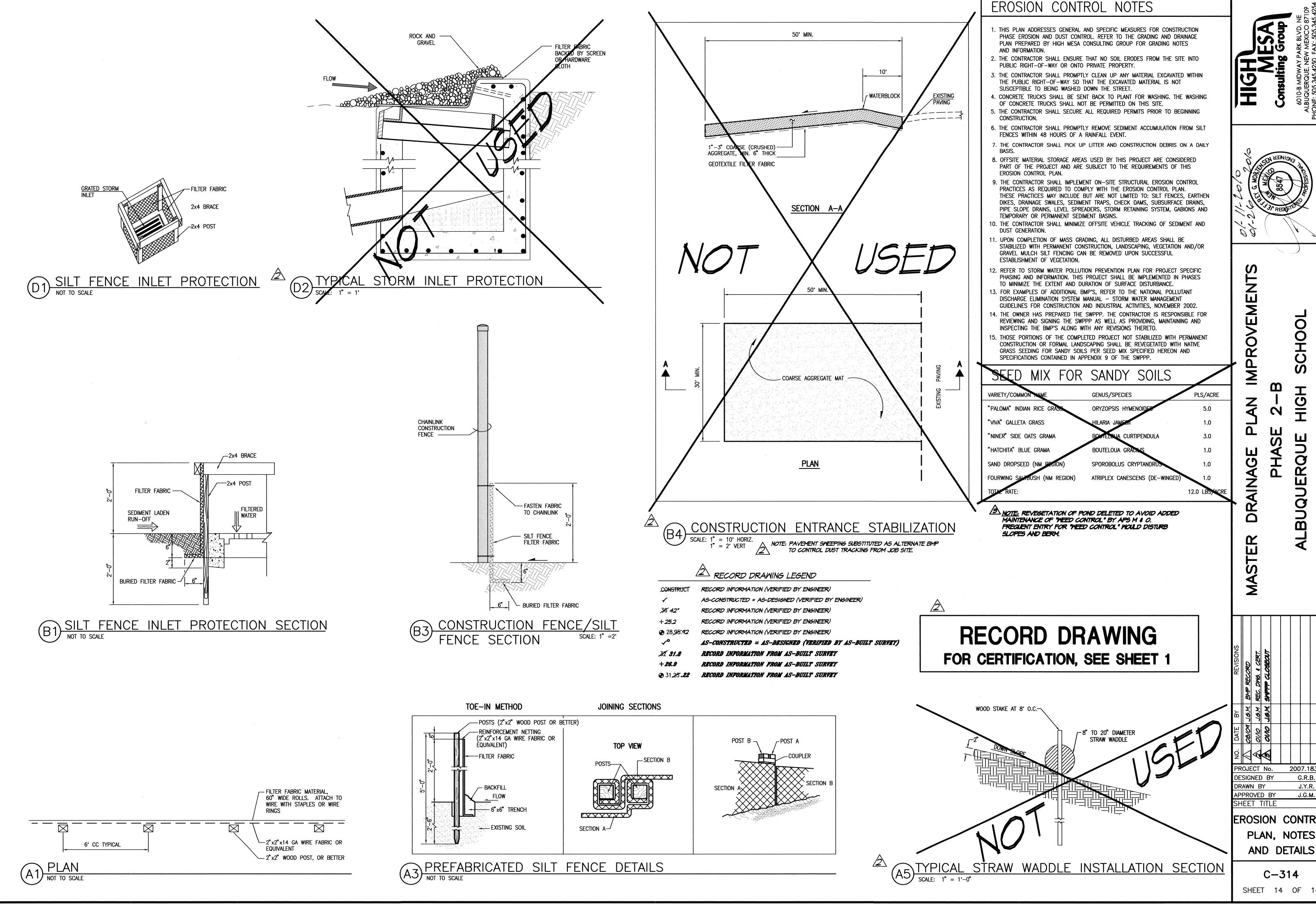
AS-CONSTRUCTED = AS-DESIGNED (VERIFIED BY ENGINEER)

PROJECT No. DESIGNED BY DRAWN BY APPROVED BY SHEET TITLE

EROSION CONTROL PLAN - NORTH

C - 112SHEET 12 OF 14





2007.183.7 G.R.B. J.G.M.

EROSION CONTROL PLAN, NOTES

C - 314

SHEET 14 OF 14