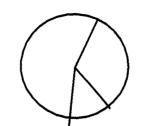


BOTANICAL NAME

COMMON NAME



Populous frimontii

COTTONWOOD

SHRUBS, PERENNIALS, VINES & GRASS PLANTINGS

Parthenocisis inserta WOODBINE

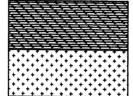
GIANT SACATON GRASS

Fallugia paradoxa APACHE PLUME

TURPENTINE BUSH Ericameria laricifolia

Rosmarinus off. TRAILING ROSEMARY 'Prostrata'

GROUND COVERS



MAXIMILLIAN Helianthus maximiliani

SUNFLOWER

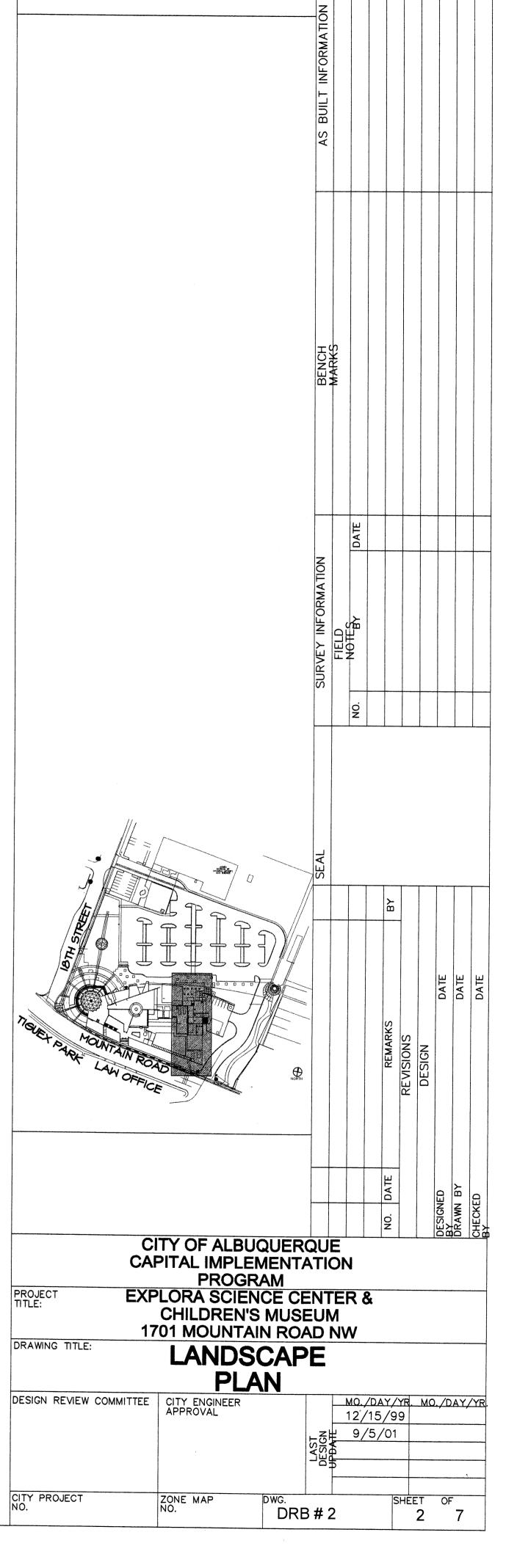
Anemopsis californica YERBA DE MANZA



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PLANNING _ANDSCAPE ARCHITECTURE MARKET ANALYSIS







DRAINAGE PLAN **CALCULATIONS** I. SITE CHARACTERISTICS INTRODUCTION AND EXECUTIVE SUMMARY A. PRECIPITATION ZONE = THIS PROJECT, LOCATED IN THE OLD TOWN AREA, REPRESENTS A MODIFICATION TO AN EXISTING SITE WITHIN AN INFILL AREA. THE PROPOSED IMPROVEMENTS CONSIST OF PHASED BUILDING ADDITIONS TO THE EXISTING MUSEUM LOCATED AT THE NORTHEAST B. $P_{6,100} = P_{360} =$ 2.35 CORNER OF THE INTERSECTION OF MOUNTAIN ROAD NW AND 18TH STREET NW. ALL PHASES OF THE PROPOSED IMPROVEMENTS LIE WITHIN BASIN B. THE PROPOSED DRAINAGE CONCEPT IS THE CONTINUED ROUTING OF DEVELOPED RUNOFF THROUGH AN EXISTING C. TOTAL PROJECT AREA (A_T) = 66,150 SF WATER HARVESTING AREA PRIOR TO FREE DISCHARGE TO MOUNTAIN ROAD NW. 1.52 AC THIS SUBMITTAL IS MADE IN SUPPORT OF SITE PLAN APPROVAL AT THE EPC. D. LAND TREATMENTS II. PROJECT DESCRIPTION 1. EXISTING LAND TREATMENT AS SHOWN BY THE VICINITY MAP, THE SITE IS LOCATED AT THE NORTHEAST CORNER OF THE INTERSECTION OF MOUNTAIN ROAD NW 66,150 SF = 1.52 AC a. BASIN B AND 18TH STREET NW. THE PROJECT AREA IS LOCATED AT THE SOUTHEAST CORNER OF THE SITE. THE CURRENT LEGAL DESCRIPTION TREATMENT AREA (SF/AC) OF THE SITE IS "TRACT B-3-A AND A PORTION OF B-3-B, FREEWAY-OLD TOWN, LIMITED", ALBUQUERQUE, NEW MEXICO. AS SHOWN BY PANEL 331 OF 825 OF THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAPS FOR BERNALILLO COUNTY. NEW MEXICO, SEPTEMBER 26, 2008, THIS SITE DOES NOT LIE WITHIN A DESIGNATED FLOOD HAZARD ZONE. HOWEVER, IT WAS PREVIOUSLY 27,350 / 0.63 RECOGNIZED BY 1999 SUBMITTAL THAT MOUNTAIN ROAD NW HAS LIMITED DRAINAGE CAPACITY. IN RECOGNITION OF THIS AND IN SUPPORT OF THE MISSION OF THE MUSEUM. WATER HARVESTING AREAS WERE CREATED THAT EFFECTIVELY ACTED AS DETENTION 38,800 / 0.89 PONDS. IN KEEPING WITH THE PAST INTENT, THE CONTINUED ROUTING OF DEVELOPED RUNOFF THROUGH EXISTING WATER HARVESTING AREAS IS PROPOSED DESPITE THE FACT THAT THE SITE IS ALLOWED FREE DISCHARGE TO THE ADJACENT CITY STREETS 2. DEVELOPED LAND TREATMENT III. BACKGROUND DOCUMENTS AND RESEARCH a. BASIN B - PHASE 1 66,150 SF = 1.52 AC THE PREPARATION OF THIS SUBMITTAL RELIED UPON THE FOLLOWING DOCUMENTS: TREATMENT AREA (SF/AC) CONCEPTUAL GRADING & DRAINAGE PLAN FOR THE EXPLORA SCIENCE CENTER PREPARED BY HIGH MESA CONSULTING GROUP 23,500 / 0.54 (FORMERLY JEFF MORTENSEN & ASSOCIATES, INC) DATED 06-30-98, THE PURPOSE OF THE CONCEPTUAL PLAN ESTABLISHED THAT FREE DISCHARGE IS PERMISSIBLE FROM THE SITE TO MOUNTAIN ROAD NE. WHILE ALSO ESTABLISHING THE CONCEPT OF 42,650 / 0.98 MITIGATING NUISANCE FLOWS BY ROUTING DEVELOPED RUNOFF THROUGH WATER HARVESTING AREAS. THE CONCEPTUAL PLAN ALSO IDENTIFIED THAT THE DEVELOPED SITE IS COMPRISED OF THREE (3) DRAINAGE BASINS SUBSEQUENTLY REFINED BY b. BASIN B - PHASE 2 66,150 SF = 1.52 AC FINAL DESIGN; THE PROPOSED SITE LIES WITHIN BASIN B AS PREVIOUSLY DEFINED. TREATMENT AREA (SF/AC) DRAINAGE SUBMITTAL FOR THE EXPLORA SCIENCE CENTER & CHILDREN'S MUSEUM PREPARED BY HIGH MESA CONSULTING GROUP (FORMERLY JEFF MORTENSEN & ASSOCIATES, INC), NMPS 8547, DATED 09-21-99 AND CERTIFIED 09-04-2002, THE 21,050 / 0.48 REFERENCE DOCUMENT PROVIDES THE BASIS FOR THE EXISTING CONDITIONS OF THE SITE FOR THE PURPOSES OF THIS SUBMITTAL FOR SITE PLAN APPROVAL AND ESTABLISHES THAT OFFSITE FLOWS DO NOT IMPACT BASIN B. 45,100 / 1.04 . EXISTING CONDITIONS c. BASIN B - PHASE 3 66.150 SF = 1.52 AC TREATMENT AREA (SF/AC) AT PRESENT, BASIN B GENERALLY DRAINS FROM NORTH TO SOUTH WITH DEVELOPED RUNOFF ROUTED THROUGH A WATER HARVESTING AREA THAT ALSO SERVES AS A "NATURE AREA", AN EXHIBIT TO THE MUSEUM. NUISANCE AND LOW FLOWS ARE 18,450 / 0.42 MITIGATED BY THE WATER HARVESTING AREA BEFORE OVERFLOWING VIA SIDEWALK CULVERT TO MOUNTAIN ROAD NW. 47,700 / 1.10 AS PREVIOUSLY DEMONSTRATED, NO OFFSITE FLOWS IMPACT BASIN B. V. DEVELOPED CONDITIONS II. HYDROLOGY PHASED BUILDING ADDITIONS ARE PROPOSED WITHIN BASIN B. THESE IMPROVEMENTS WILL ENCROACH UPON THE WATER A. EXISTING CONDITION HARVESTING AREA PREVIOUSLY IDENTIFIED AS A "DETENTION POND", ALTHOUGH NOT REQUIRED FOR PRIOR APPROVALS (I.E. FREE DISCHARGE WAS DETERMINED TO BE PERMISSIBLE). THE DEVELOPED RUNOFF FROM THE PROPOSED BUILDING ADDITIONS WILL 1. BASIN B CONTINUE TO BE ROUTED THROUGH THE EXISTING "NATURE AREA" WITH OVERFLOW TO MOUNTAIN ROAD NW VIA EXISTING SIDEWALK CULVERT. THE FINISHED FLOOR ELEVATION OF THE PROPOSED BUILDING ADDITIONS WILL MATCH THE EXISTING BUILDING THAT IS SIGNIFICANTLY HIGHER THAN THE MAXIMUM WATER SURFACE ELEVATION OF THE NATURE AREA THEREBY PROTECTING THE BUILDING $E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D)/A_T$ FROM ONSITE FLOODING. IN ADDITION, THE STRUCTURAL DESIGN OF THE BUILDING ADDITION FOUNDATIONS SHALL TAKE INTO ((0.00*0.53) + (0.63*0.78) + (0.00*1.13) + (0.89*2.12))/1.52 = 1.57 INACCOUNT THE PROXIMITY OF THE NEW BUILDING FOOTPRINT TO THE MAXIMUM WATER SURFACE ELEVATION WITHIN THE NATURE (1.57/12)1.52 = 0.1989 AC-FT = $V_{100} = (E_W/12)A_T =$ AREA TO MAKE SURE THE FOUNDATION IS WATERPROOF AND PROTECTED FROM SETTLEMENT. b. PEAK DISCHARGE VI. GRADING PLAN $Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$ THE GRADING PLAN SHOWS 1.) EXISTING GRADES INDICATED BY SPOT ELEVATIONS AND CONTOURS AT 1'0" INTERVALS AS TAKEN $Q_P = Q_{100} = ((0.00*1.56) + (0.63*2.28) + (0.00*3.14) + (0.89*4.7)) =$ 5.6 CFS FROM THE DRAINAGE CERTIFICATION DATED 09-04-2002. 2) PROPOSED GRADES INDICATED BY SPOT ELEVATIONS AND CONTOURS AT 1'-0" INTERVALS, 3) PHASING, 4) THE LIMIT AND CHARACTER OF THE EXISTING IMPROVEMENTS TAKEN FROM THE DRAINAGE **B. DEVELOPED CONDITION** CERTIFICATION DATED 09-04-2002, 5) THE LIMIT AND CHARACTER OF THE PROPOSED IMPROVEMENTS, AND 6) CONTINUITY BETWEEN EXISTING AND PROPOSED GRADES. 1. BASIN B - PHASE 1 VII. CALCULATIONS a. VOLUME $E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D)/A_T$ THE CALCULATIONS CONTAINED HEREON ANALYZE THE EXISTING AND DEVELOPED CONDITIONS FOR THE 100-YEAR, 6-HOUR RAINFALL ((0.00*0.53) + (0.54*0.78) + (0.00*1.13) + (0.98*2.12))/1.52 =EVENT FOR BASIN B (THE PORTION OF THE SITE AFFECTED BY THE PROPOSED IMPROVEMENTS). THE PROCEDURE FOR 40 ACRE AND $V_{100} = (E_W/12)A_T = (1.64/12)1.52 = 0.2077 \text{ AC-FT} =$ SMALLER BASINS, AS SET FORTH IN THE REVISION OF SECTION 22.2, HYDROLOGY OF THE DEVELOPMENT PROCESS MANUAL, VOLUME 9.050 CF 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 A MINOR INCREASE IN b. PEAK DISCHARGE THE PEAK RATE OF DISCHARGE AND VOLUME OF RUNOFF GENERATED BY THIS PROJECT. $Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$ $Q_P = Q_{100} = ((0.00*1.56) + (0.54*2.28) + (0.00*3.14) + (0.98*4.7)) =$ 5.8 CFS VII. CONCLUSIONS 2. BASIN B - PHASE 2 THE FOLLOWING CONCLUSIONS HAVE BEEN ESTABLISHED AS A RESULT OF THE EVALUATIONS AND ANALYSES CONTAINED HEREIN: a. VOLUME 1. THE SITE DOES NOT LIE WITHIN A DESIGNATED FLOOD HAZARD ZONE. $E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D)/A_T$ 2. THE FREE DISCHARGE OF RUNOFF FROM THIS SITE IS APPROPRIATE BASED UPON PRIOR SUBMITTALS. ((0.00*0.53) + (0.48*0.78) + (0.00*1.13) + (1.04*2.12))/1.52 = 1.69 IN3. THE CONTINUED ROUTING OF BASIN B RUNOFF THROUGH THE NATURE AREA IS APPROPRIATE AND INTEGRAL TO THE EXHIBIT. 4. THE ROUTING OF BASIN B RUNOFF THROUGH THE NATURE AREA IS NOT REQUIRED AS FREE DISCHARGE IS PERMISSIBLE. $V_{100} = (E_W/12)A_T = (1.69/12)1.52 = 0.2141 AC-FT =$ 9,320 CF 5. THE PROPOSED IMPROVEMENTS WILL RESULT IN A NEGLIGIBLE INCREASE IN RUNOFF GENERATED BY BASIN B. 6. THE PROPOSED IMPROVEMENTS WILL NOT ADVERSELY IMPACT DOWNSTREAM PROPERTIES OF CONDITIONS. b. PEAK DISCHARGE $Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$ $Q_P = Q_{100} = ((0.00*1.56) + (0.48*2.28) + (0.00*3.14) + (1.04*4.7)) =$ 6.0 CFS 3. BASIN B - PHASE 3 a. VOLUME $E_W = (E_A A_A + E_B A_B + E_C A_C + E_D A_D)/A_T$ ((0.00*0.53) + (0.42*0.78) + (0.00*1.13) + (1.10*2.12))/1.52 = 1.74 IN $V_{100} = (E_W/12)A_T = (1.74/12)1.52 = 0.2204 \text{ AC-FT} =$ 9.600 CF b. PEAK DISCHARGE $Q_P = Q_{PA}A_A + Q_{PB}A_B + Q_{PC}A_C + Q_{PD}A_D$ $Q_P = Q_{100} = ((0.00*1.56) + (0.42*2.28) + (0.00*3.14) + (1.10*4.7)) =$ 6.1 CFS C. COMPARISON 1. BASIN B - PHASE a. VOLUME *V₁₀₀ = 9.050 - 8.660 = (INCREASE) 390 CF b. PEAK DISCHARGE $^*Q_{100} = 5.8 - 5.6 =$ 0.2 CFS (INCREASE) 2. BASIN B - PHASE 2 a. VOLUME 9,320 - 8,660 = 660 CF (INCREASE) b. PEAK DISCHARGE $^*Q_{100} = 6.0 - 5.6 =$ 0.4 CFS (INCREASE) 3. BASIN B - PHASE 3

a. VOLUME

b. PEAK DISCHARGE *Q₁₀₀ = 6.1 - 5.6 =

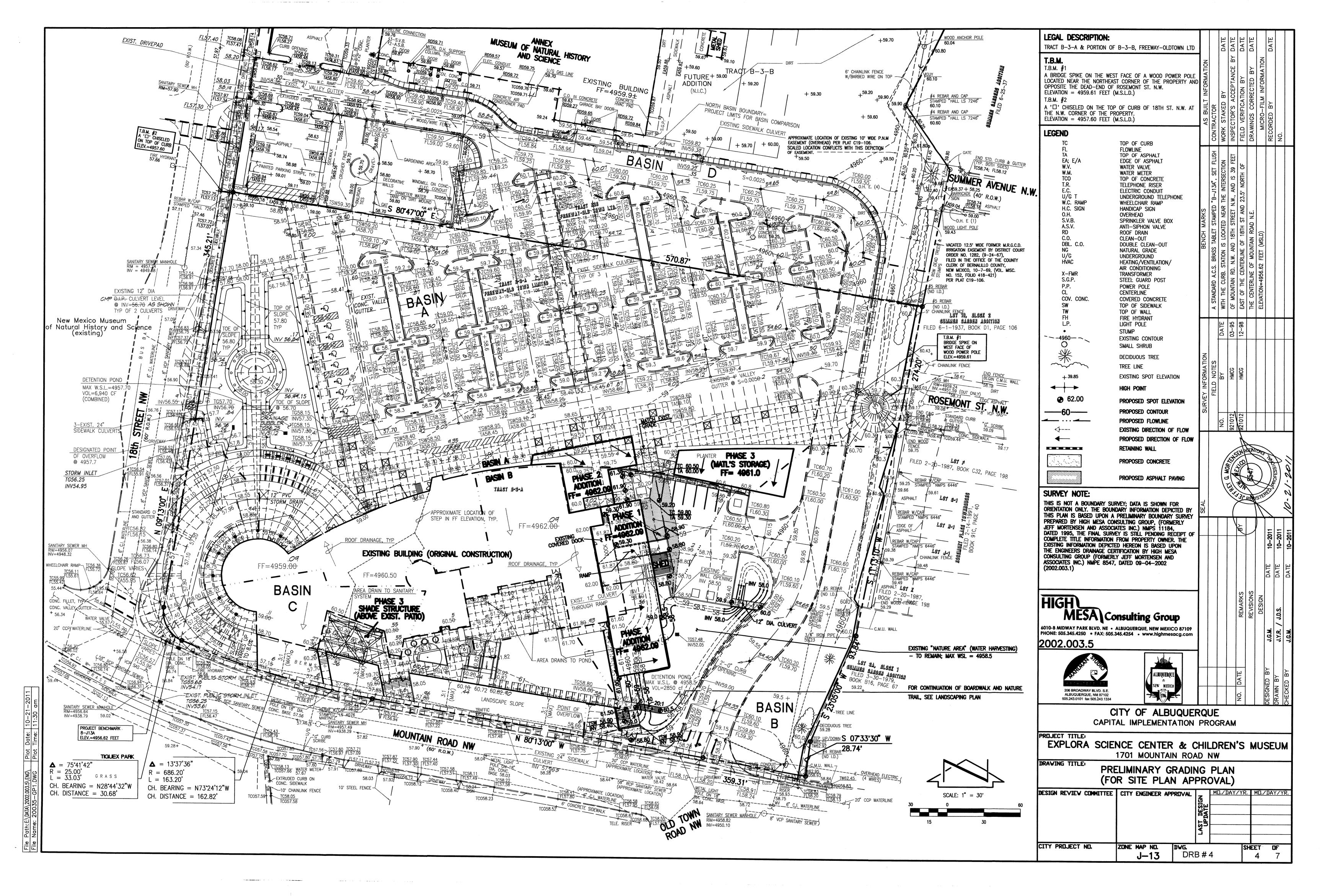
9,600 - 8,660 =

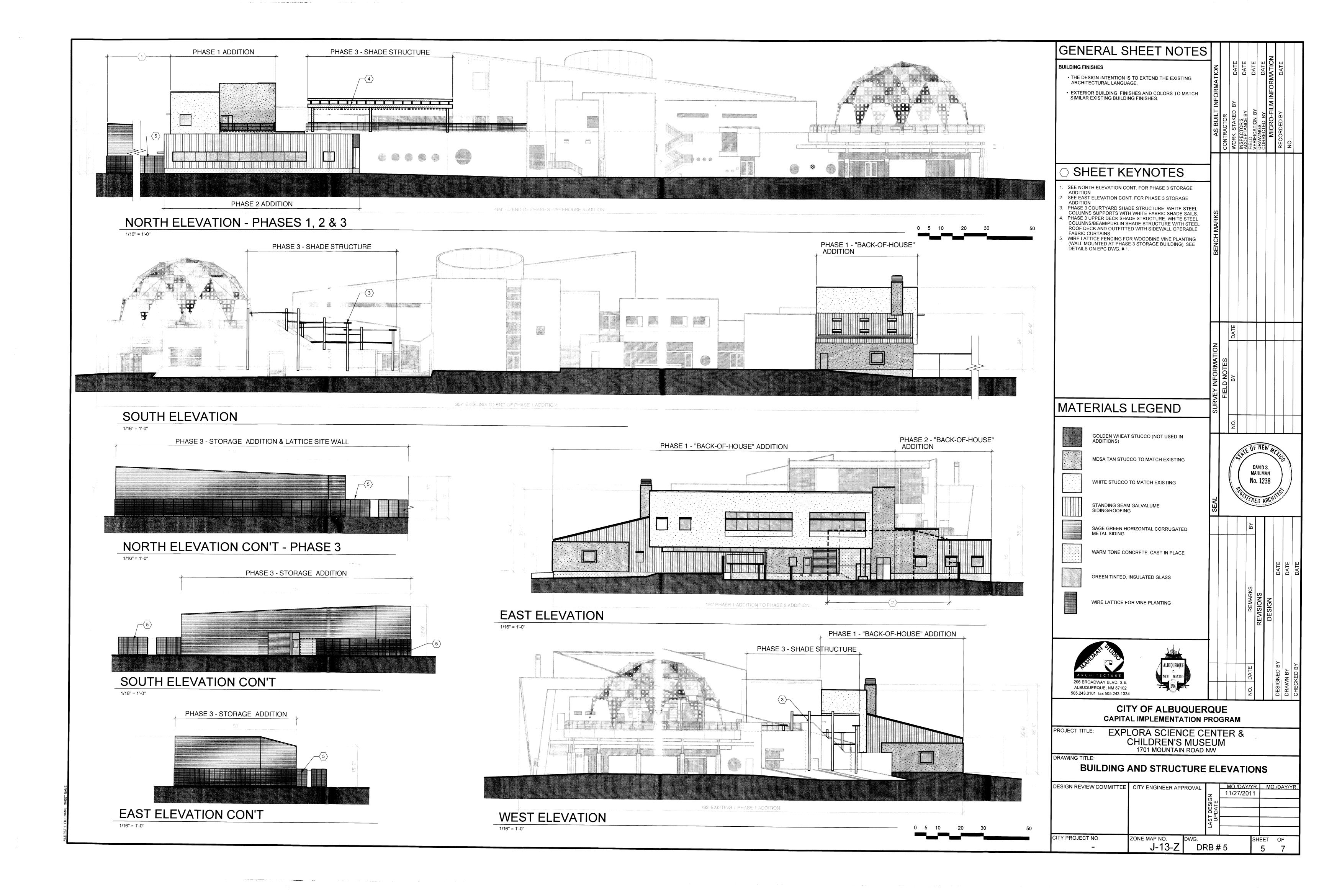
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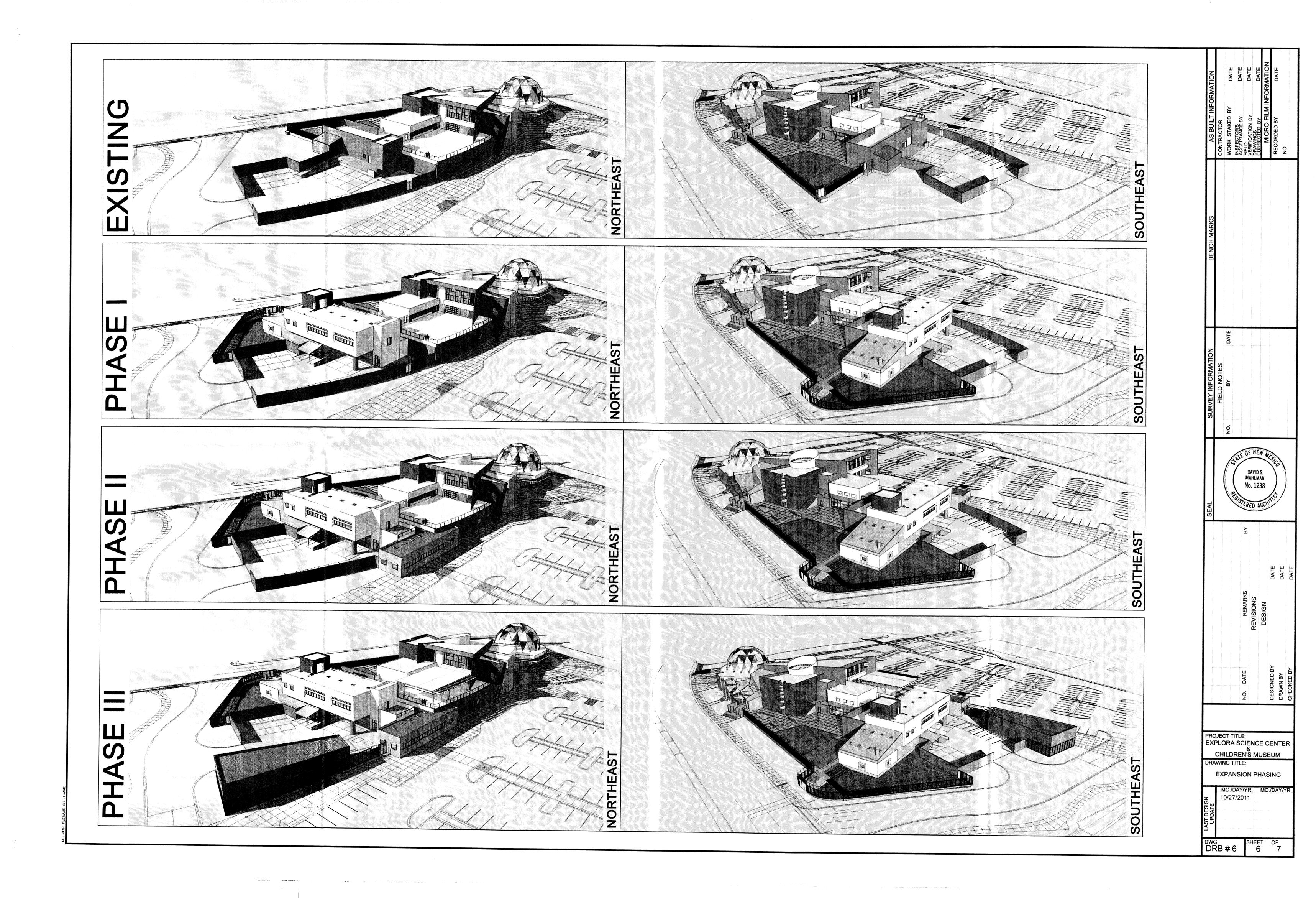
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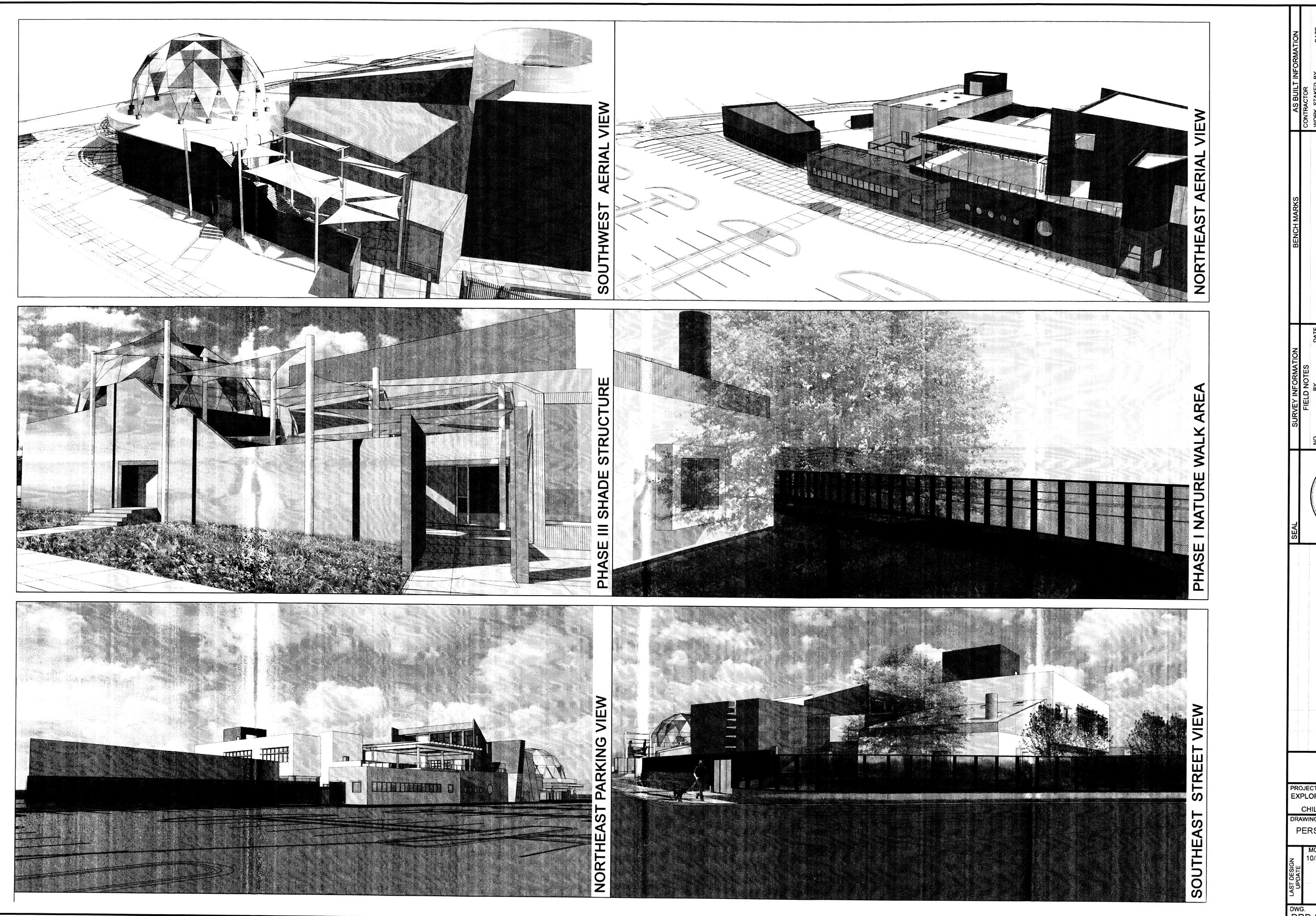
0.5 CFS

LEGAL DESCRIPTION: TRACT B-3-A & PORTION OF B-3-B, FREEWAY-OLDTOWN LT T.B.M. T.B.M. #1 A BRIDGE SPIKE ON THE WEST FACE OF A WOOD POWER POLE LOCATED NEAR THE NORTHEAST CORNER OF THE PROPERTY AND OPPOSITE THE DEAD-END OF ROSEMONT ST. N.W. ELEVATION = 4959.61 FEET (M.S.L.D.) T.B.M. #2 A 'D' CHISELED ON THE TOP OF CURB OF 18TH ST. N.W. THE N.W. CORNER OF THE PROPERTY. ELEVATION = 4957.60 FEET (M.S.L.D.) **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. 5. 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. 4. UNLESS FINAL STABILIZATION IS OTHERWISE PROVIDED FOR. VICINITY MAP ANY AREAS OF EXCESS DISTURBANCE (TRAFFIC ACCESS, STORAGE YARD, EXCAVATED MATERIAL, ETC.) SHALL BE SCALE: 1" = 750' RE-SEEDED ACCORDING TO C.O.A. SPECIFICATION 1012 "NATIVE GRASS SEEDING". THIS WILL BE CONSIDERED INCIDENTAL TO CONSTRUCTION, THEREFORE, NO SEPARATE PAYMENT WILL BE MADE. **LEGEND** TOP OF CURB FLOWLINE TOP OF ASPHALT EA: E/A EDGE OF ASPHALT WATER VALVE WATER METER TCO TOP OF CONCRETE TELEPHONE RISER ELECTRIC CONDUIT UNDERGROUND TELEPHONE W.C. RAMP WHEELCHAIR RAMP H.C. SIGN HANDICAP SIGN 0.H. OVERHEAD S.V.B. SPRINKLER VALVE BOX ANTI-SIPHON VALVE A.S.V. ROOF DRAIN RD C.O. CLEAN-OUT DBL. C.O. DOUBLE CLEAN-OUT NATURAL GRADE UNDERGROUND U/G HEATING/VENTILATION AIR CONDITIONING X-FMR TRANSFORMER S.G.P. STEEL GUARD POST SLATE AVE NW POWER POLE P.P. CENTERLINE COV. CONC. COVERED CONCRETE FIRM PANEL 331 of 825 TOP OF SIDEWALK TOP OF WALL VCIVEER 1435 SCALE: 1" = 500'L.P. LIGHT POLE STUMP **--4960-- -**-EXISTING CONTOUR \circ SMALL SHRUB DECIDUOUS TREE TREE LINE EXISTING SPOT ELEVATION +39.85 \leftarrow HIGH POINT **62.00** PROPOSED SPOT ELEVATION PROPOSED CONTOUR ----60----___ . . . ___ PROPOSED FLOWLINE EXISTING DIRECTION OF FLOW $\overline{}$ PROPOSED DIRECTION OF FLOW **←**----**RETAINING WALL** PROPOSED CONCRETE HIGH MESA Consulting Group PROPOSED ASPHALT PAVING 6010-B MIDWAY PARK BLVD. NE . ALBUQUERQUE, NEW MEXICO 87109 PHONE: 505.345.4250 • FAX: 505.345.4254 • www.highmesacg.com 2002.003.5 ALBUQUERQUE 206 BROADWAY BLVD, S F ALBUQUERQUE, NM 87102 CITY OF ALBUQUERQUE CAPITAL IMPLEMENTATION PROGRAM PROJECT TITLE EXPLORA SCIENCE CENTER & CHILDREN'S MUSEUM 1701 MOUNTAIN ROAD NW DRAWING TITLE DRAINAGE PLAN AND CALCULATIONS (FOR SITE PLAN APPROVAL) DESIGN REVIEW COMMITTEE | CITY ENGINEER APPROVAL CITY PROJECT NO. ZONE MAP NO. SHEET OF DRB # 3









DAVID S. MAHLMAN DATE PROJECT TITLE:
EXPLORA SCIENCE CENTER
&
CHILDREN'S MUSEUM PERSPECTIVE VIEWS MO./DAY/YR MO./DAY/YR 10/27/2011

DWG. SHEET OF 7