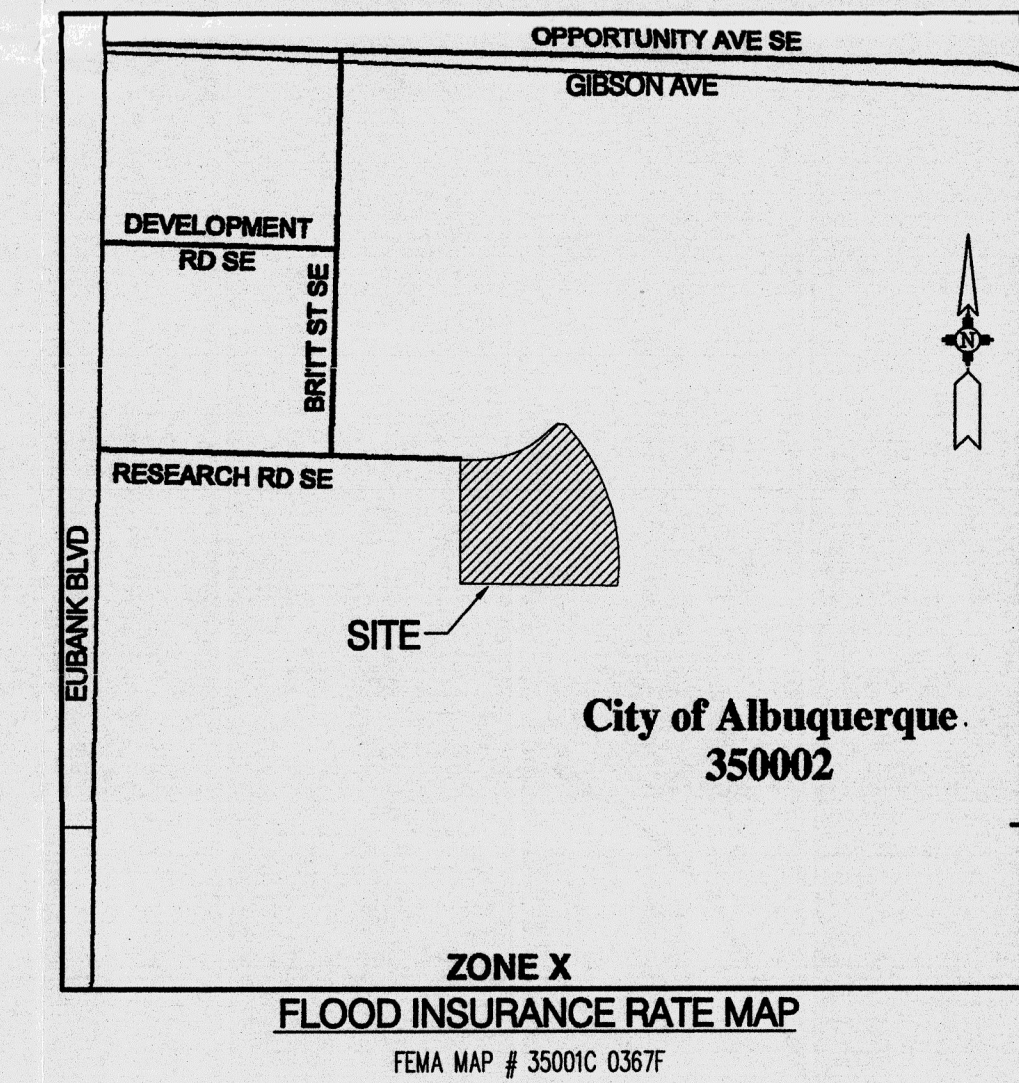


LOCATION MAP
ZONE ATLAS INDEX MAP No. M-21-Z



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LEGAL DESCRIPTION

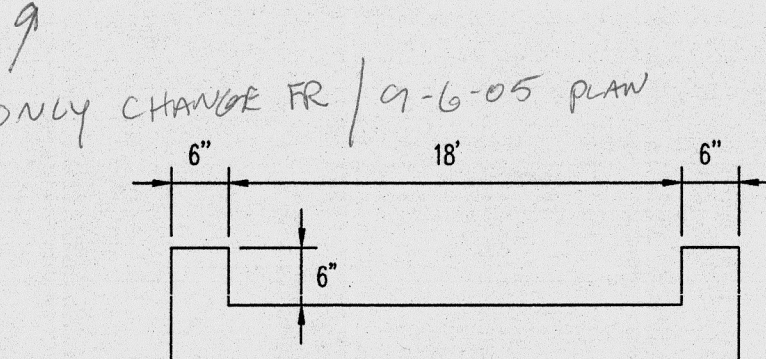
Tract H, Sandia Science and Technology Park

BENCHMARK

ACS ALUMINUM CAP STAMPED "6-L21,
1986" INTERSECTION OF CENTRAL AVE.
& ELIZABETH ST.
ELEV=5503.35 NAVD 88

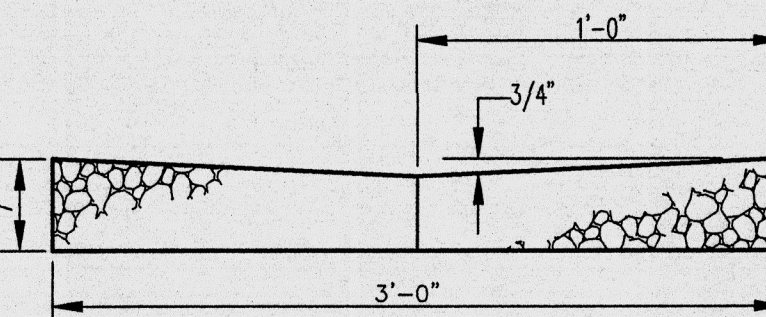
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- INSTALL 4" DRAIN PIPE.
- INSTALL GUTTER SECTION PER DETAIL 3 THIS SHEET.



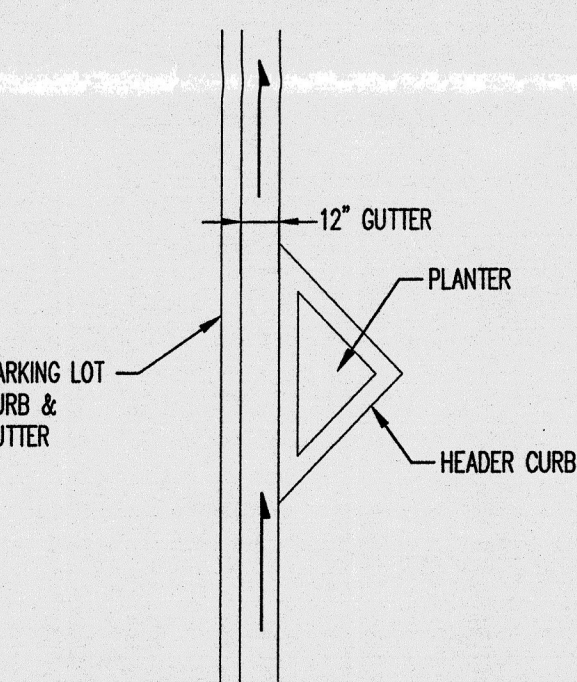
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N.T.S.



2 VALLEY GUTTER TYPICAL SECTION

N.T.S.



3 GUTTER DETAIL AT PLANTER

N.T.S.

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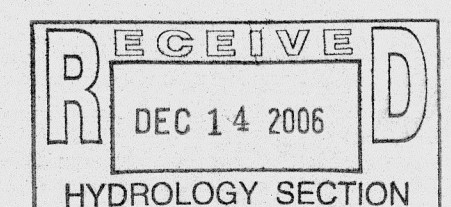
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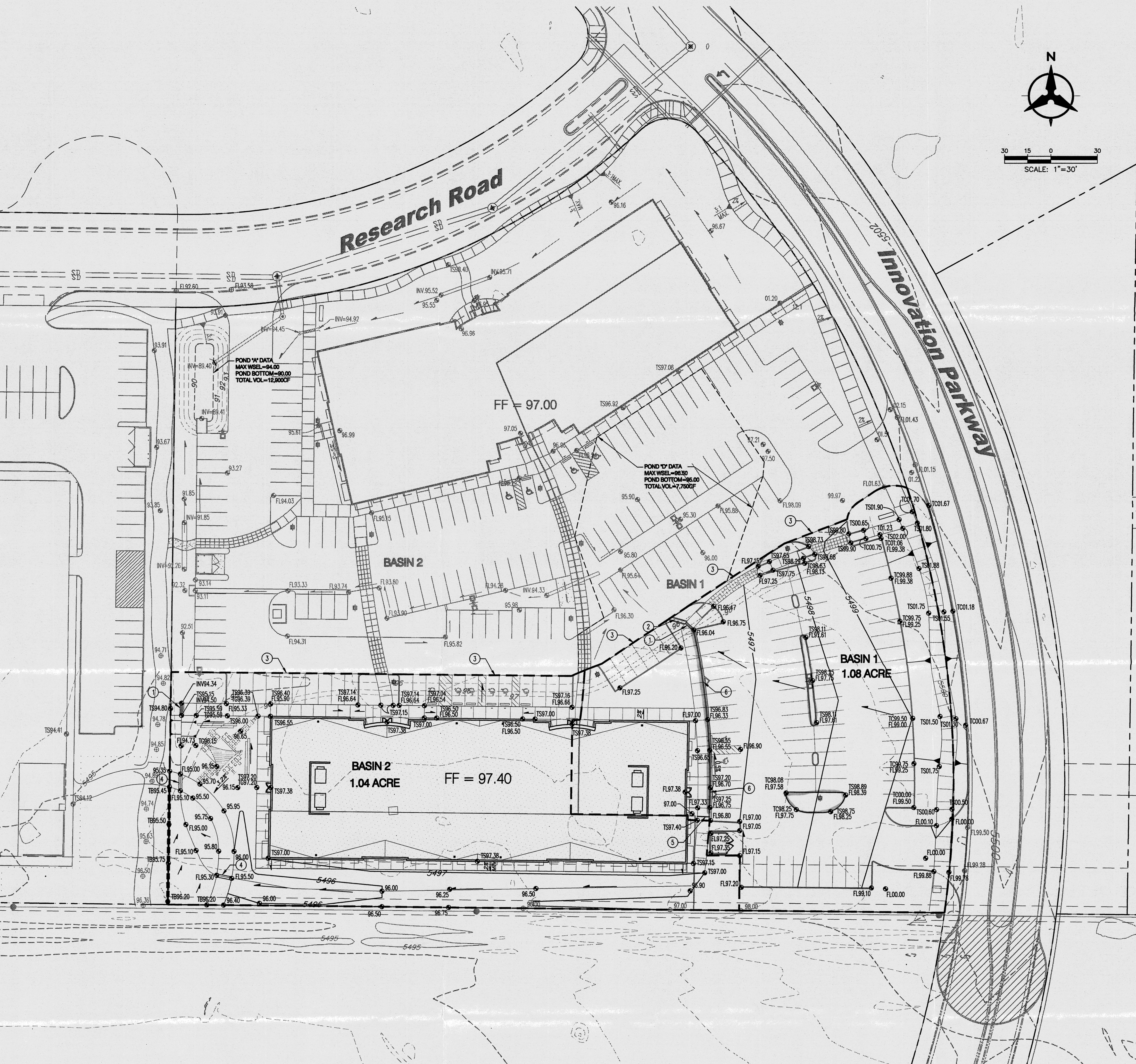


Bohannon & Huston

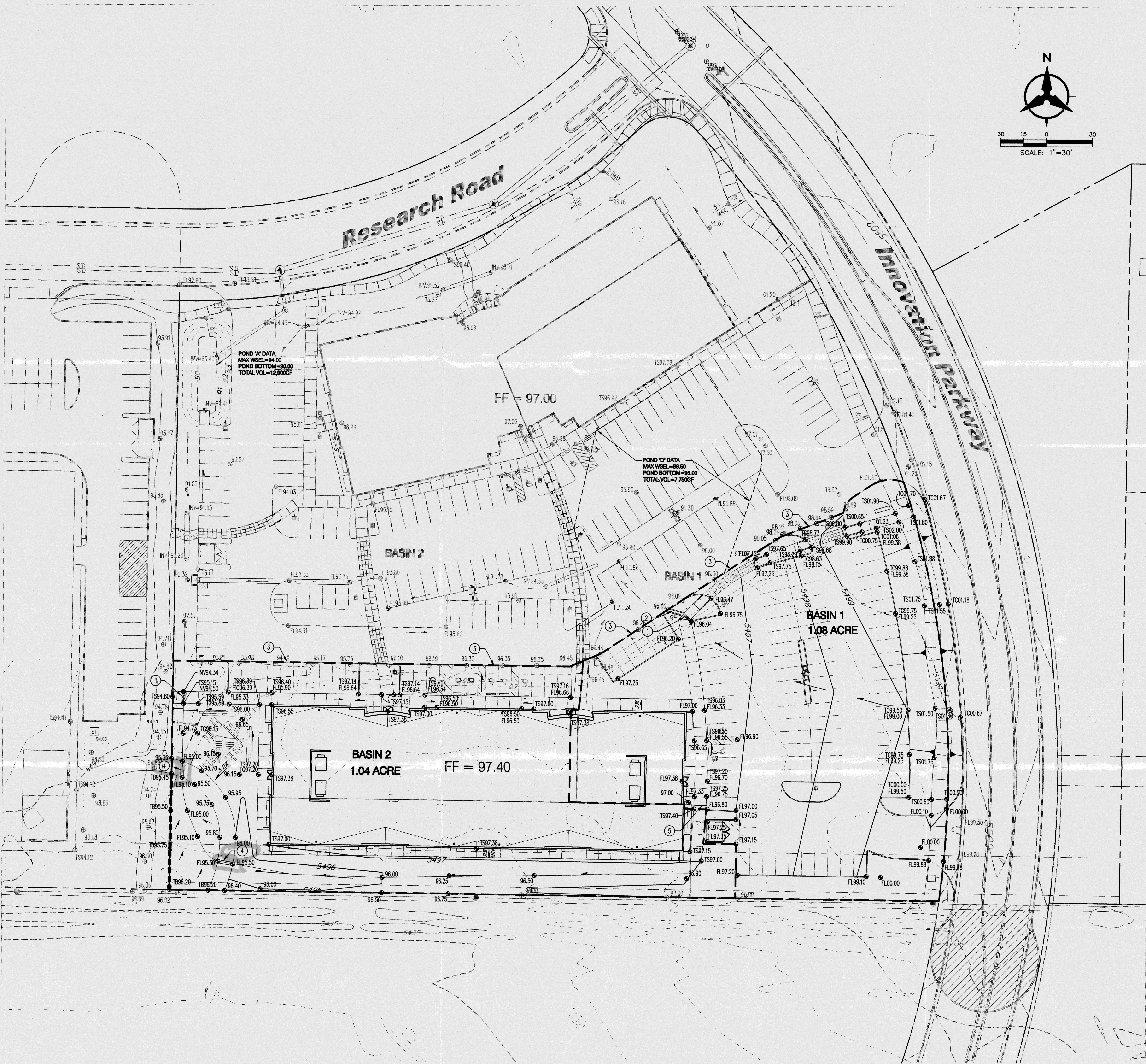
Courtyard I 7000 Jefferson St. NE Albuquerque, NM 87109-4336
ENGINEERING & SPATIAL DATA & ADVANCED TECHNOLOGIES

II Innovation Center

1501 Innovation Parkway
Albuquerque, New Mexico



innovation Park Phase ii								
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This table is based on the DPM Section 22.2, Zone: 3								
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2	45440	1.04	0.0%	10.0%	10.0%	80.0%	4.62	4.82
TOTAL	92360	2.12	-	-	-	-	4.62	9.80
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LEGAL DESCRIPTION

Tract H, Sandia Science and Technology Park

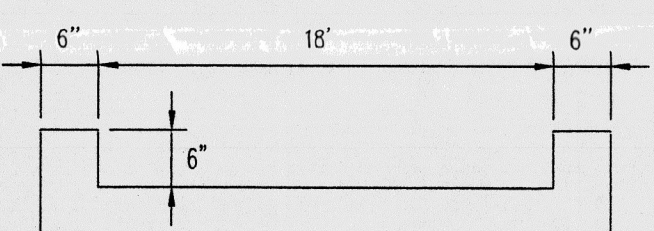
BENCHMARK

ACS ALUMINUM CAP STAMPED "6-121, 1988" INTERSECTION OF CENTRAL AVE. & ELIZABETH ST.

ELEV=5003.35 NAVD 88

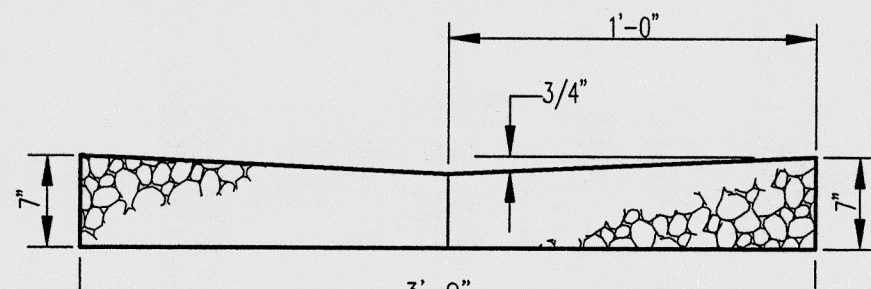
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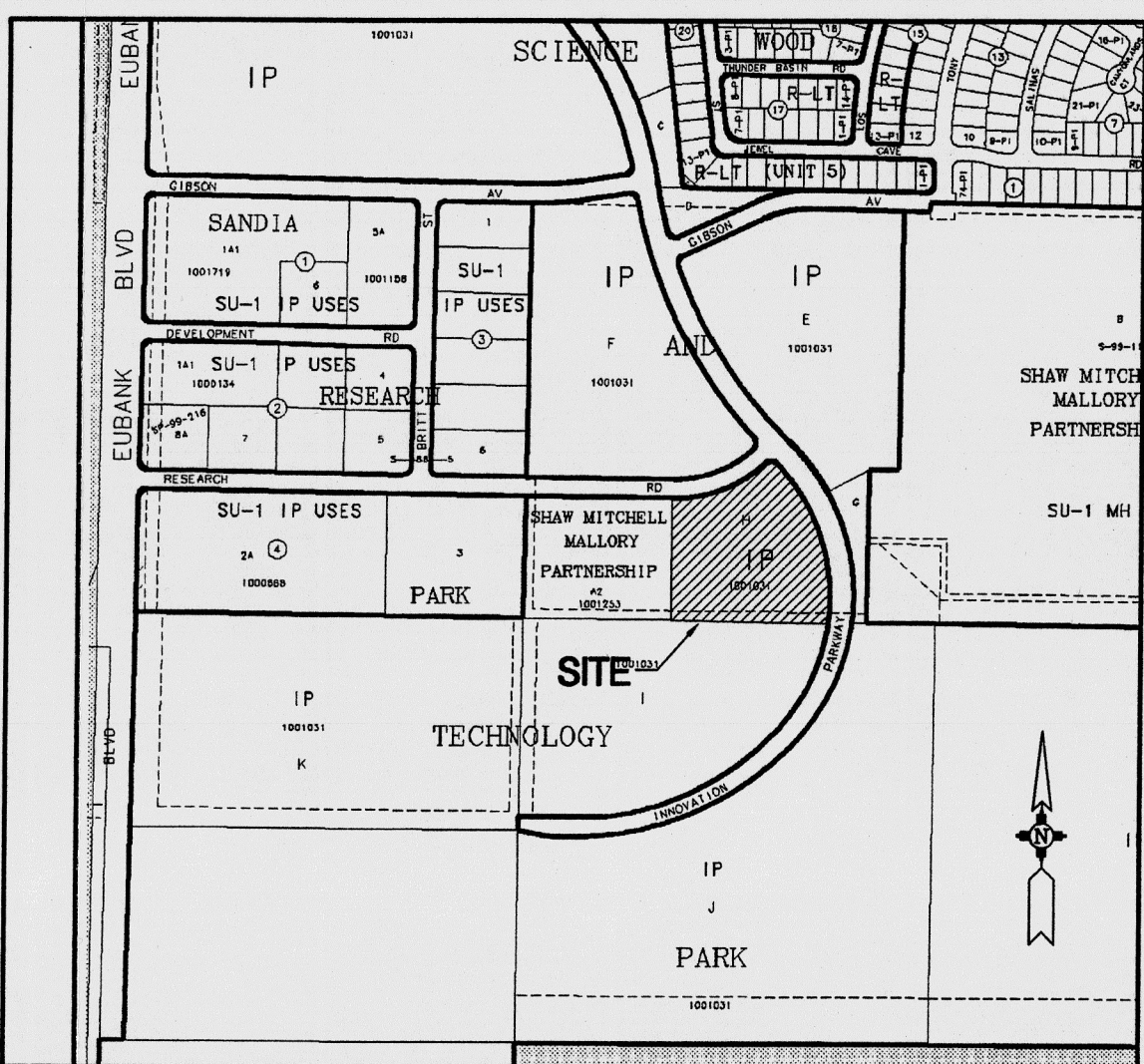
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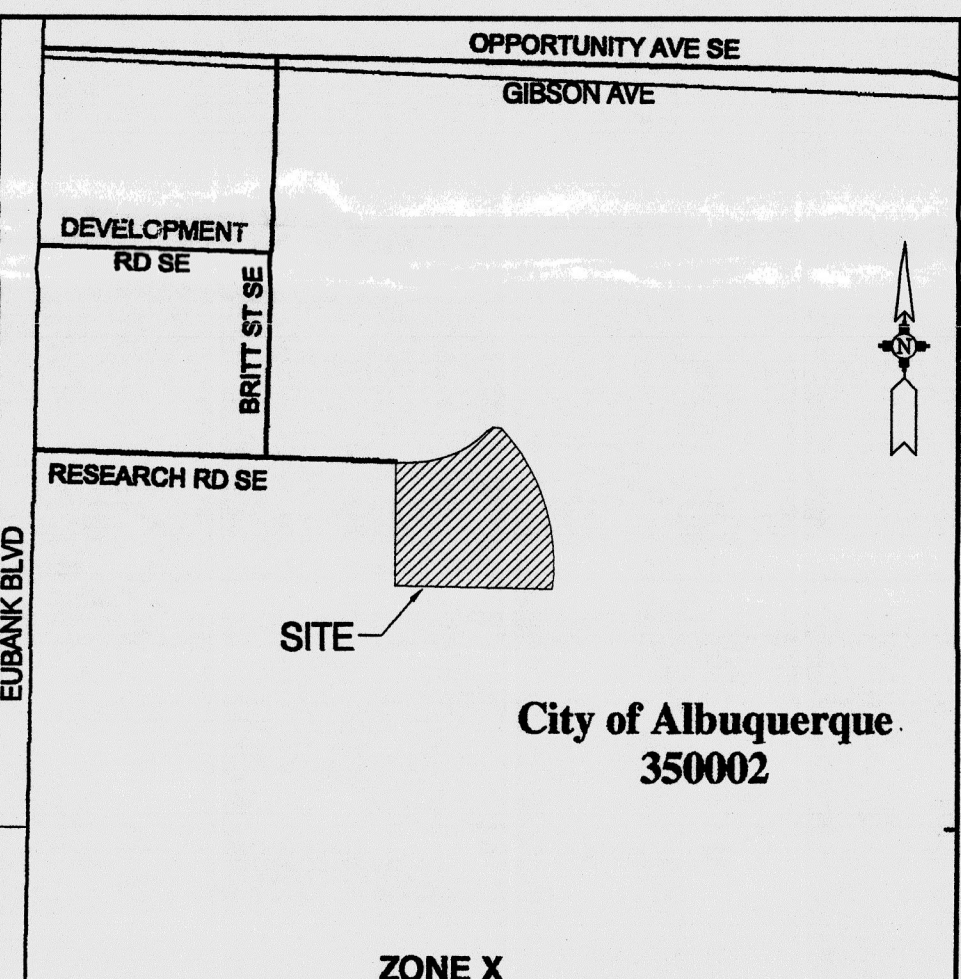
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LOCATION MAP

ZONE ATLAS INDEX MAP No. M-21-Z



FEMA MAP # 35001C 0367

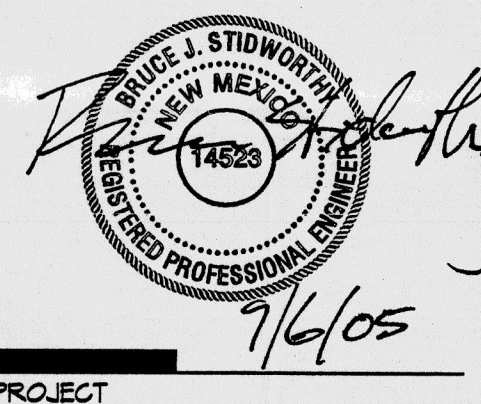
architecture
interiors
planning
engineering

**Dekker
Perich
Sabatini**

6801 Jefferson NE
Suite 100
Albuquerque, NM 87109
505 761-9700
fax 761-4222
dps@epsabq.com

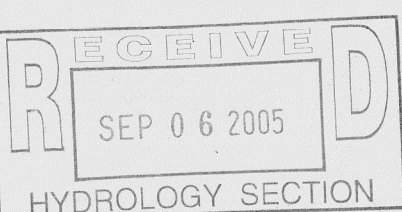
ARCHITECT

ENGINEER

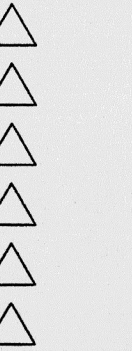


PROJECT

II Innovation Center
1501 Innovation Parkway
Albuquerque, New Mexico



REVISIONS



DRAWN BY: **BO**
REVIEWED BY: **BJS**
DATE: **09/06/05**
PROJECT NO.: **CBC22**
DRAWING NAME:

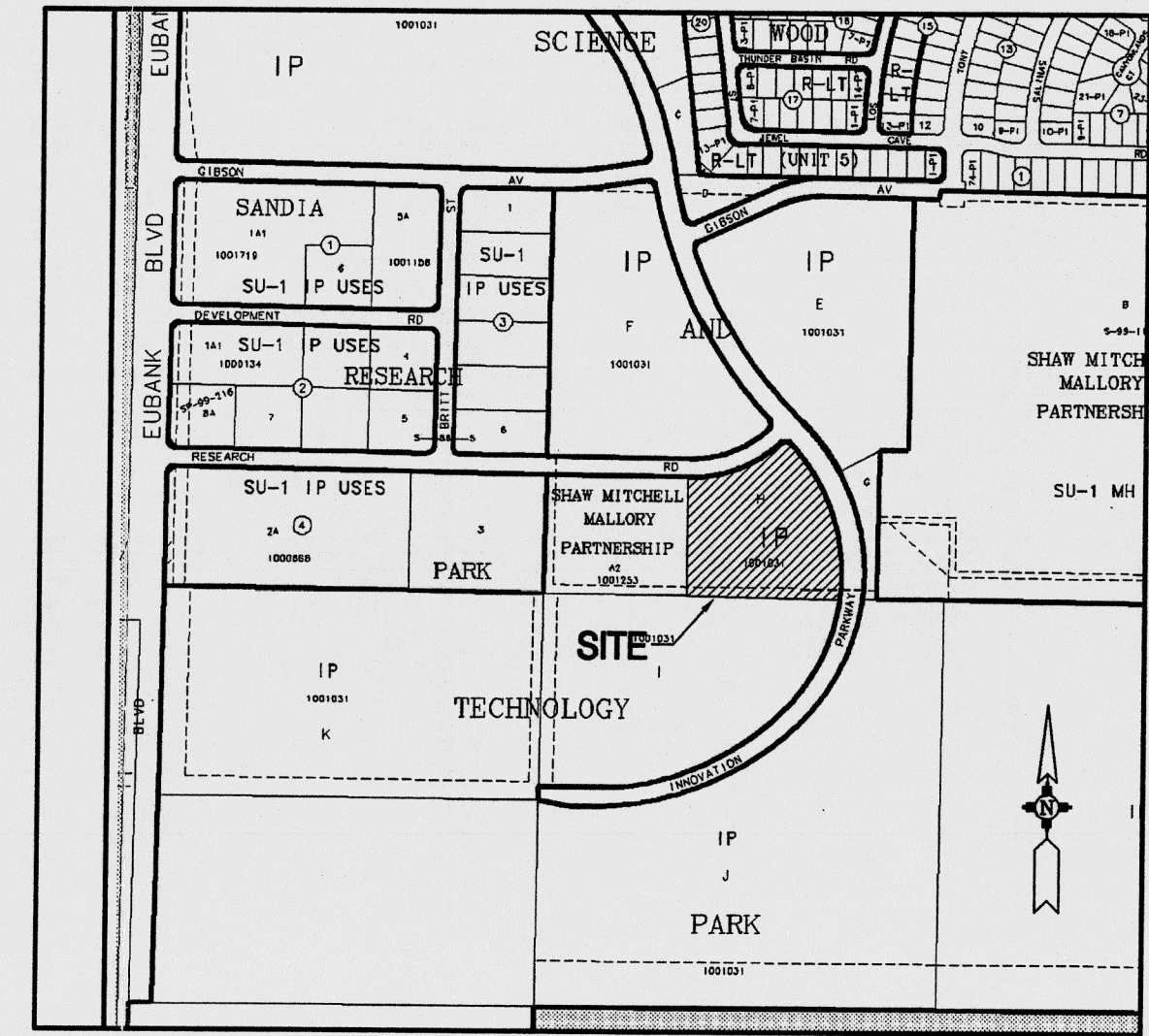
**GRADING AND
DRAINAGE PLAN**

SHEET NO.

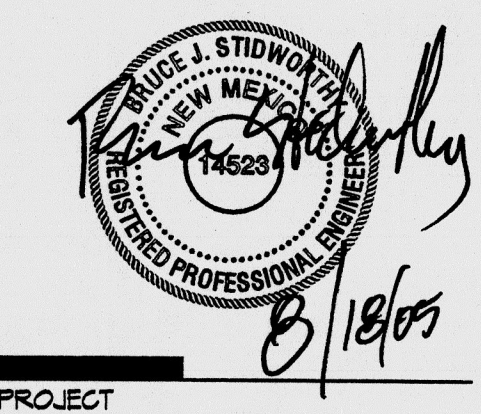
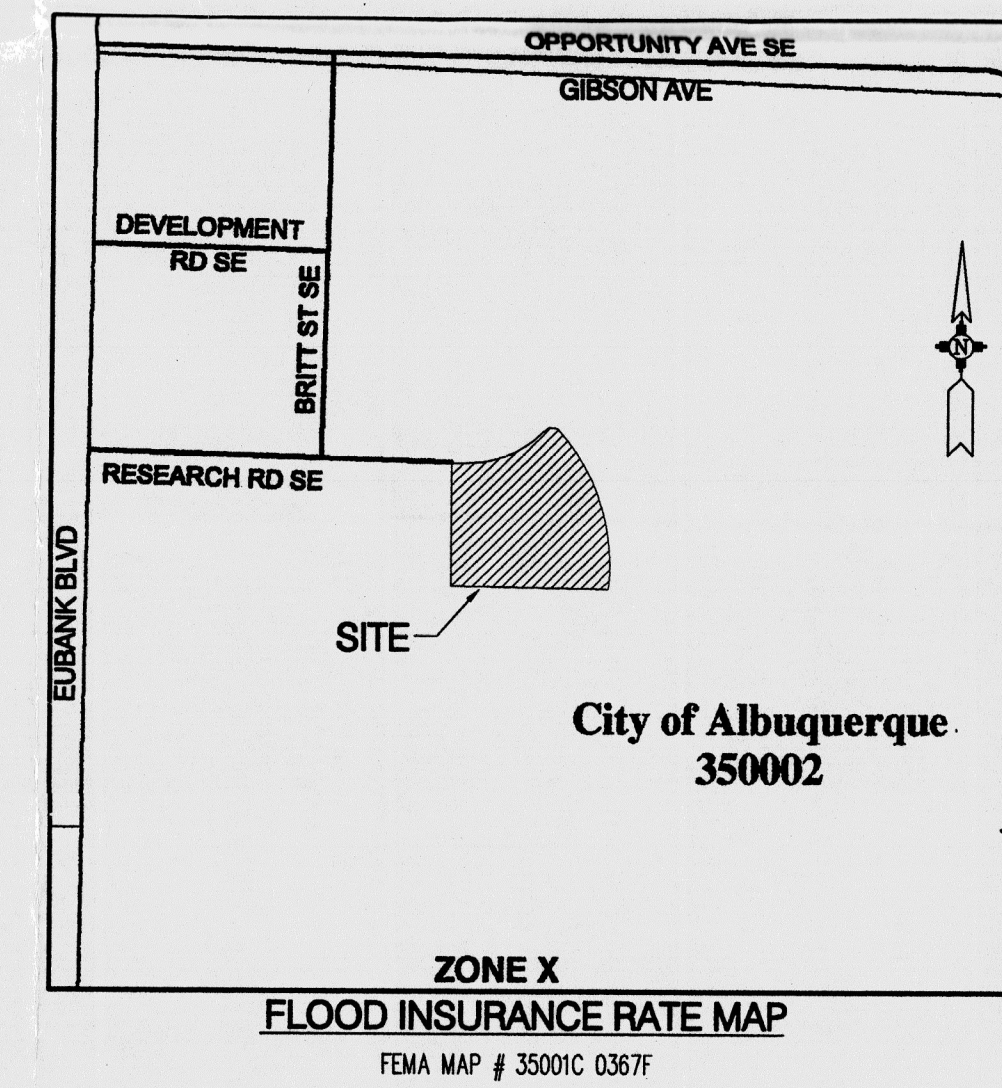
C101
OF

Bohannon & Huston

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LOCATION MAP
ZONE ATLAS INDEX MAP No. M-21-Z



LEGAL DESCRIPTION

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BENCHMARK

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where's this detail?

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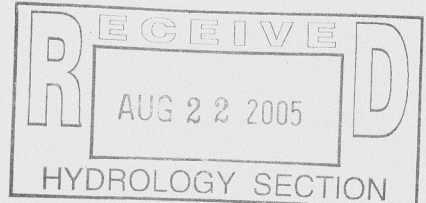
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REVISIONS

△
△
△
△
△
△

DRAWN BY: BO
REVIEWED BY: BJS
DATE: 08/14/05
PROJECT NO.: C802B
DRAWING NAME:

**GRADING AND
DRAINAGE PLAN**

SHEET NO.

C101
OF

Bohannon & Huston

Courtyard 1 7800 Jefferson St. NE Albuquerque, NM 87109-4335
ENGINEERING • SPATIAL DATA • ADVANCED TECHNOLOGIES

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GENERAL NOTES

- PARKING LOT TREES - 1 PER EVERY 6 PARKING SPACES.
- CROSS ACCESS & CROSS PARKING AGREEMENT BETWEEN PHASE I & PHASE II WILL BE INCORPORATED INTO THE FINAL PLAN.

KEYED NOTES

- 6" CMU REFUSE ENCLOSURE PER C.O.A. SOLID MASTE DEPT. STANDARDS. STUCCO TO MATCH PRIMARY BUILDING COLOR. REFER DETAIL A2/1.
- HANDICAPPED PARKING SIGN, REFER TO DETAIL C1/1.
- BIKE RACK IV 1 SPACES, REFER DETAIL A5/1.
- LANDSCAPE AREA.
- CONCRETE SIDEWALK.
- PROPERTY LINE.
- 25'-0" PARKING SETBACK ALONG INNOVATION PARKWAY.
- 15'-0" PARKING SETBACK.
- 50'-0" X 50'-0" PARKING SETBACK AT INTERIOR CORNER.
- MONUMENT SIGN, REFER TO DETAIL D1/1.
- 20'-0" SPACING OF TREES ALONG INNOVATION PARKWAY.
- 30'-0" SPACING OF TREES ALONG RESEARCH ROAD.
- TEXTURED PEDESTRIAN CONNECTION.
- TREES & 25'-0" O.C. & PEDESTRIAN CONNECTION.
- CAR/VAN POOL, PREFERRED PARKING SIGN.
- 35'-0" BUILDING SETBACK.
- PAINTED PARKING STRIPES.
- STABILIZED CRUSHER FINE PEDESTRIAN PATH, 6" WIDE.
- RTU/IV SCREENS.
- ELECTRICAL TRANSFORMER IV SCREEN WALL ON THREE SIDES CMU SCREEN WALL STUCCO FINISH TO MATCH PRIMARY BUILDING COLOR. HT. TO BE 5' ABOVE EQUIPMENT.
- STABILIZED CRUSHER FINE BIKE PAD.
- 30' PUBLIC SANITARY SEWER EASEMENT.
- CONCRETE TRAIL.
- EXISTING RAMP.
- LOCATE METERS ALONG NEST SIDE OF BUILDING.
- ASPHALTIC PAVING PER SOILS REPORT.
- NO ACCESSIBLE RAMP.
- COLOR CONCRETE PAVEMENT WITH CONTROL JOINTS @ 8'-0" O.C. AND EXPANSION JOINTS @ 20'-0" O.C.
- PEDESTRIAN ACCESS EASEMENT TO BE ESTABLISHED BY PLAT TO INSIDE EDGE OF SIDEWALK.
- NOT USED.
- 15' PRIVATE SANITARY SEWER EASEMENT.

BUILDING, SITE & PARKING DATA

Legal Description:
4.11 ACRE PORTION OF SOUTHWEST CORNER OF TRACT A, LANDS OF SHAW, MITCHELL MALLORY PARTNERSHIP, JANUARY 22, 1991, VOLUME 99C, FOLIO 14

Abuquerque Zoning Code

- Lot area: 209,619 sq ft (4.71 ac.)
- Zone: SU-1 IP - Industrial Park

Signage:

- Minimum: One freestanding (monumental) sign, 50 sq ft/face
- Provided: 10' x 4' = 40 sq ft/face

Structure height:

- Maximum allowed: 120' or less than 45' from property line
- Actual height of building: 22' (outside of 45')

Lot size: no more than 50% buildings (50,109 / 209,619 = 24% < 50%)

Setbacks:

- Front: 35'
- Side/Rear: 15'

Parking:

- Building "A": 25,475 sq ft @ 85% = 21,654 sq ft net leasable area, / 300 = 100 spaces
- Building "B": 24,628 sq ft @ 85% = 20,934 sq ft net leasable area, / 200 = 105 spaces
- Total # parking spaces required = 215
- Handicapped spaces required: 8, provided: 8
- Bicycle parking spaces required: 215 / 20 = 11, provided: 14
- Provided: 226 total spaces (incl. 8 H.G. & 15 compact)

SITE DEVELOPMENT PLAN

APPROVED BY:

Sharon Nelson
City Planning Director, City of Albuquerque Planning Department

11/10/03
Date

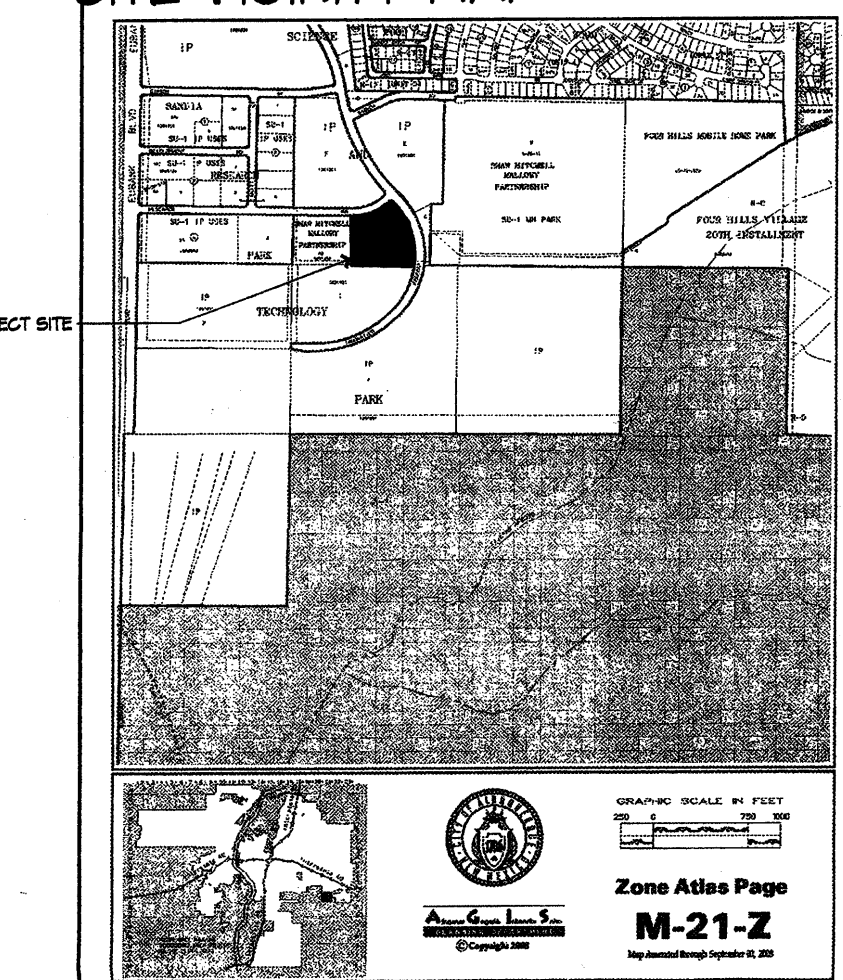
James T. Smith
Master Developer / A/E

11/6/2003
Date

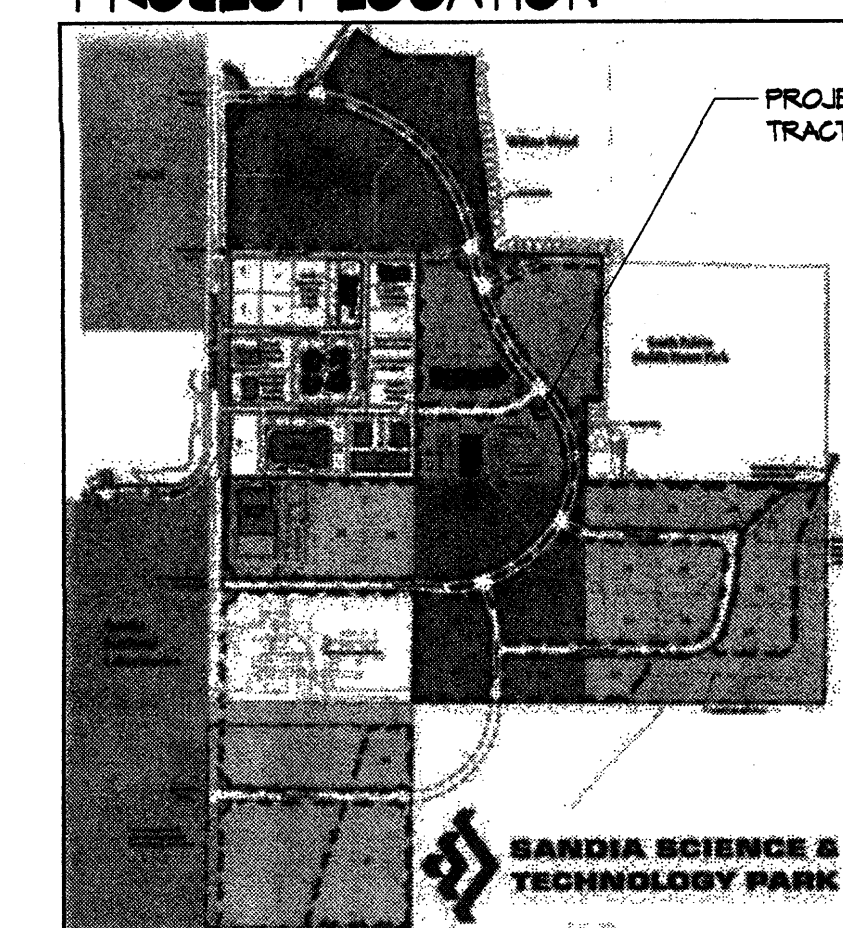
PROJECT NUMBER:

This plan is consistent with the specific site development plan for subdivision approval by the Environmental Planning Commission on March 22, 2001 and that the findings and conditions in the Official Notice of Decision have been complied with.

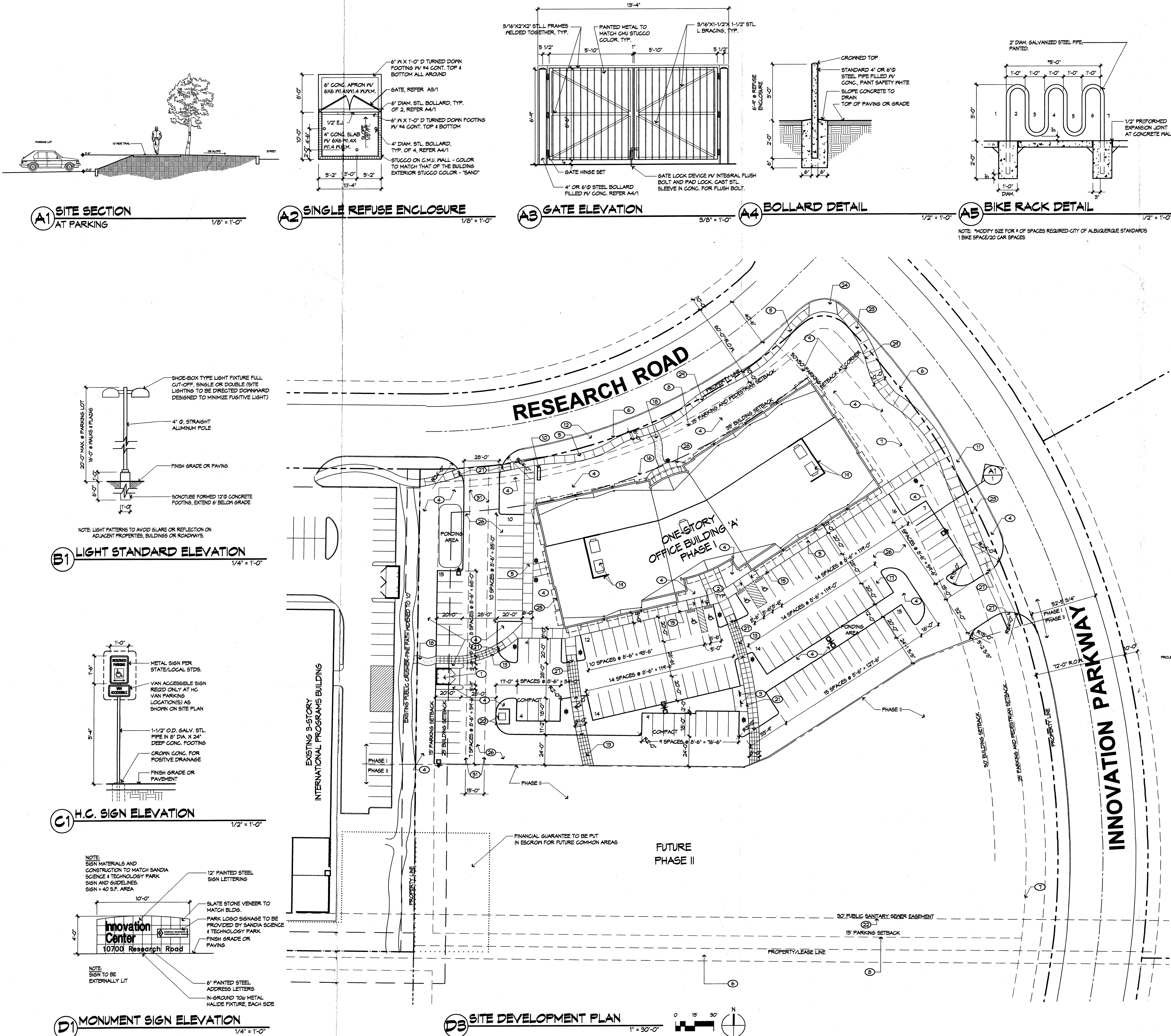
SITE VICINITY MAP



PROJECT LOCATION



RECEIVED
APR 21 2004
HYDROLOGIC SECTION

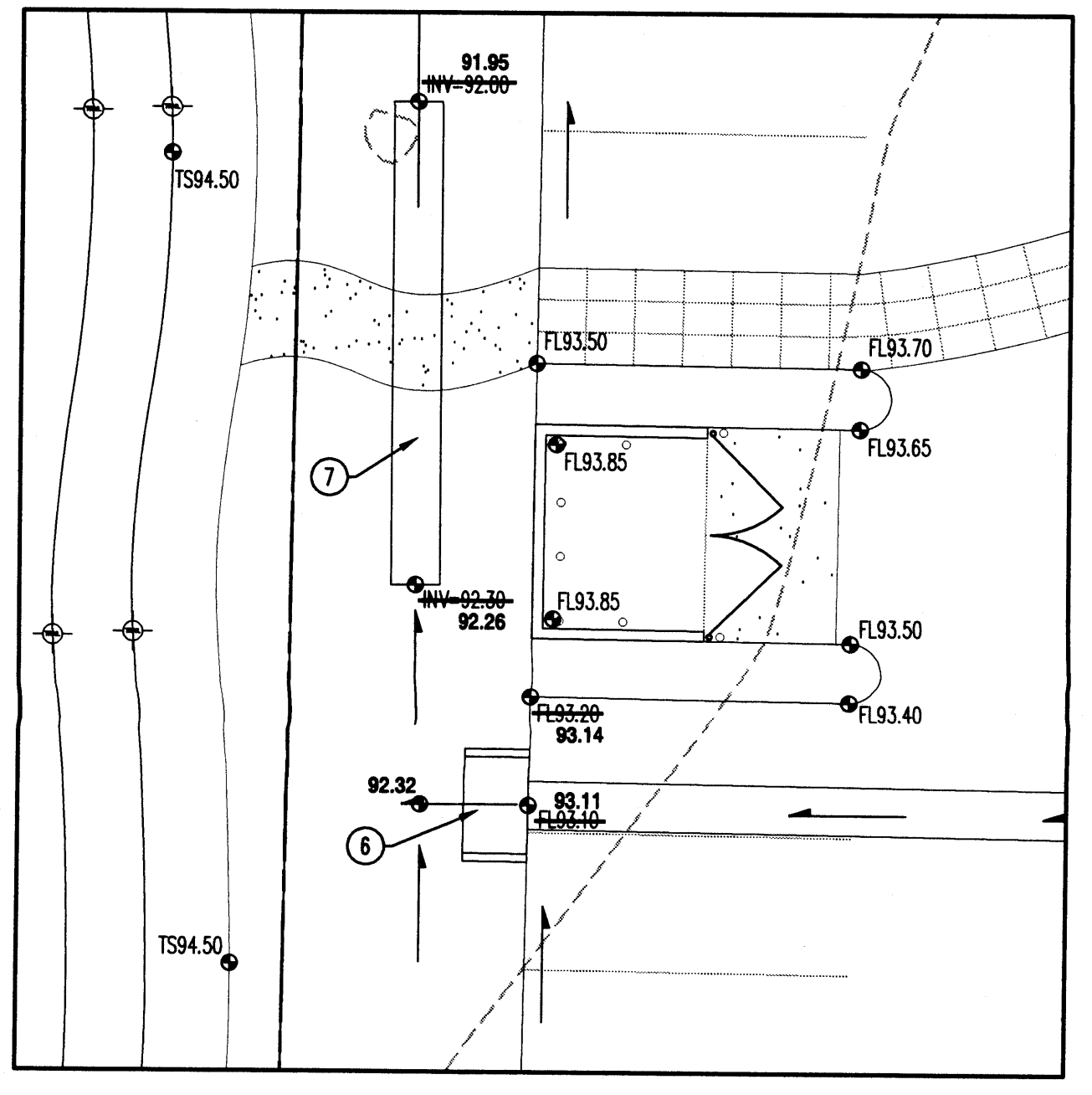


GRADING & DRAINAGE KEYED NOTES

1. INSTALL NEW 4" DIA. TYPE "C" STORM DRAIN MANHOLE AS PER COA STD. DWG. 2101
2. NEW 12" STORM DRAIN
3. THE NEW 12" STORM DRAIN TO EXISTING STUBOUT. REMOVE & DISPOSE IF EXISTING PLUG. PROVIDE CONCRETE COLLAR AT CONNECTION. INV.=83.47 (INVERT BASED ON AS-BUILTS, CONTRACTOR SHALL VERIFY)
4. DAYLIGHT NEW STORM DRAIN. INSTALL FLARED END SECTION. INV.=89.50.
5. 18" WIDE SIDEWALK CULVERT AS PER COA STD. DWG. 2236
6. CONCRETE RUNDOWN AS PER DETAILS, THIS SHEET. PROVIDE CURB OPENING TO MATCH WIDTH OF RUNDOWN.
7. DAYLIGHT 10" DRAINAGE PIPE. METER END OF PIPE TO MATCH SLOPE. SEE PLAN FOR INVERT
8. EXISTING CRUSHER FINES PATH SHALL BE REGRADE AND RESURFACED WITH CRUSHER FINES SUCH THAT THE PATH SURFACE = 94.5 OR HIGHER.
9. ELEVATION AT PROPERTY LINE SHALL BE 94.00
10. PROVIDE 18" WIDE CURB OPENING FOR DRAINAGE
11. TRANSFORMER PAD ELEVATION = 94.30
12. DRAINAGE SWALE SHALL BE 13" MIN. FROM FACE OF BUILDING
13. NOT USED
14. VALLEY GUTTER AS PER DETAIL THIS SHEET.
15. CURB & GUTTER AS PER "MEDIAN CURB AND GUTTER", COA STD. DWG. 2415.
16. 12" STORM DRAIN PIPE. METER ENDS TO MATCH SLOPE.
17. MAXIMUM THEORETICAL LIMIT OF POND.
18. INSTALL 6" EXTRUDED ASPHALT CURB ALONG SOUTH EDGE OF PARKING LOT
19. TIE TO 3" ROOF DRAIN, DAYLIGHT AT FACE OF CURB

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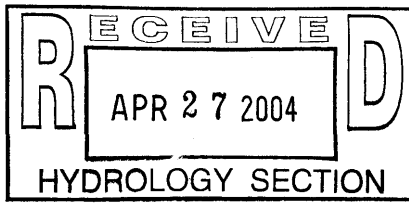
ENLARGED GRADING PLAN
SCALE: 1"=10'

DRAINAGE CERTIFICATION

I, BRUCE STIDWORTHY, N.M.P.E. 14523, OF THE FIRM BOHANNAN HUSTON INC., HEREBY CERTIFY THAT THIS PROJECT HAS BEEN GRADED AND WILL DRAIN IN SUBSTANTIAL COMPLIANCE WITH AND IN ACCORDANCE WITH THE DESIGN INTENT OF THE APPROVED PLAN DATED 10-13-03. THE RECORD INFORMATION EDITED ONTO THE ORIGINAL DESIGN DOCUMENT HAS BEEN OBTAINED BY LARRY MEDRANO, N.M.P.S. 111893, OF THE FIRM PRECISION SURVEYS. I FURTHER CERTIFY THAT I HAVE PERSONALLY VISITED THE PROJECT SITE ON APRIL 23, 2004 AND HAVE DETERMINED BY VISUAL INSPECTION THAT THE SURVEY DATA PROVIDED IS REPRESENTATIVE OF ACTUAL SITE CONDITIONS AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF. THIS CERTIFICATION IS SUBMITTED IN SUPPORT OF A REQUEST FOR PERMANENT CERTIFICATE OF OCCUPANCY.

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

Bruce Stidworthy
BRUCE STIDWORTHY, N.M.P.E. 14523
DATE: 4/27/04



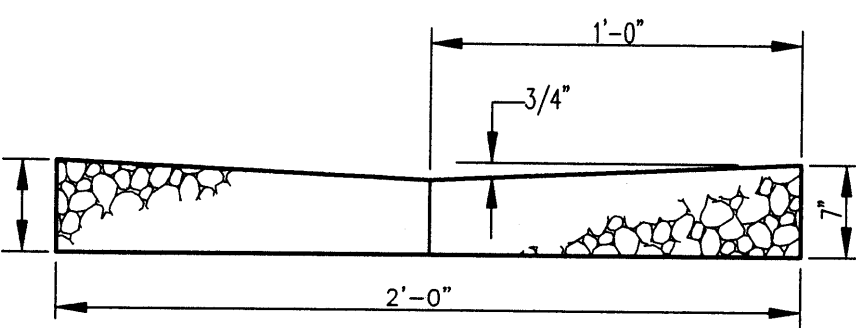
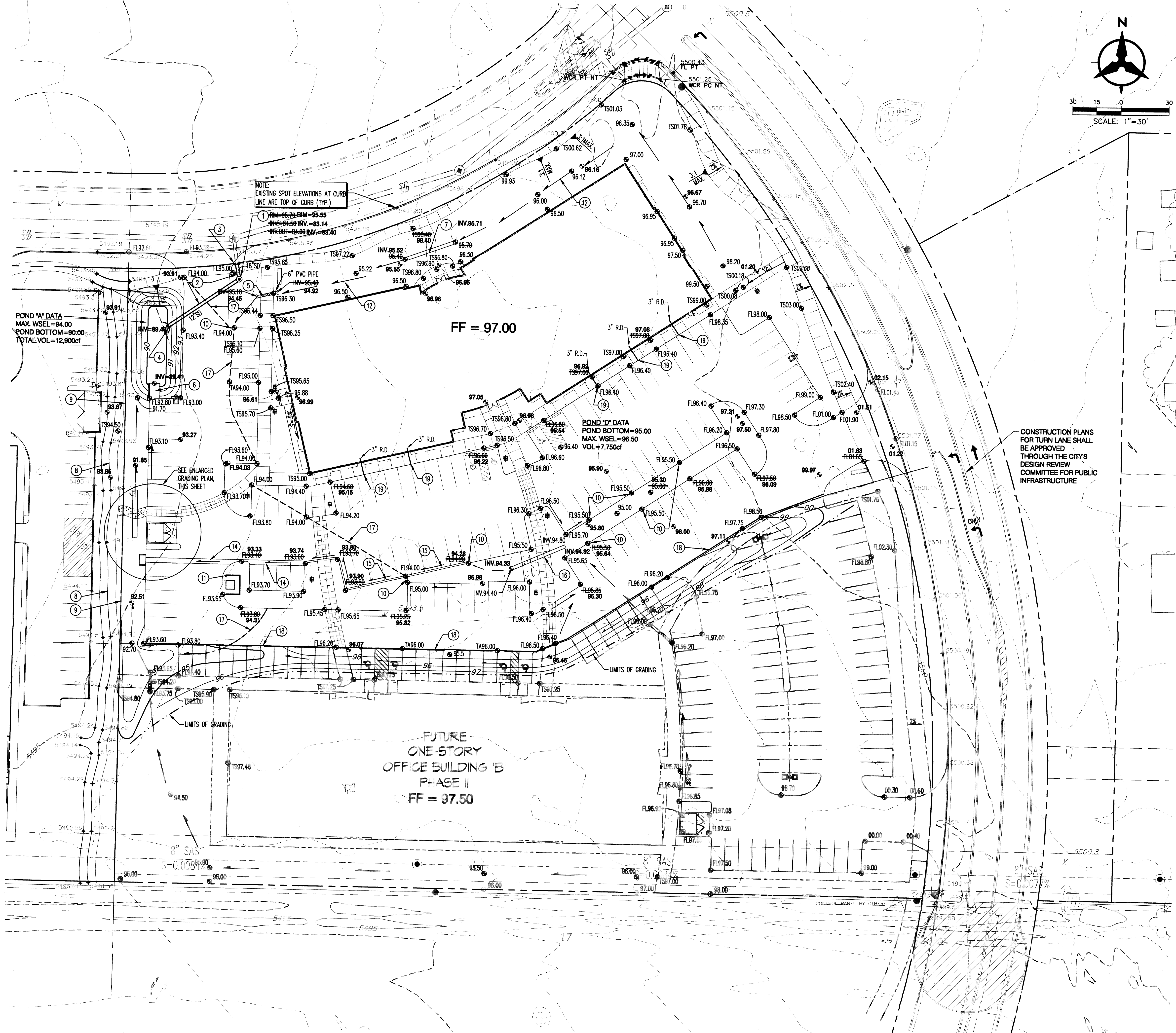
BENCHMARK

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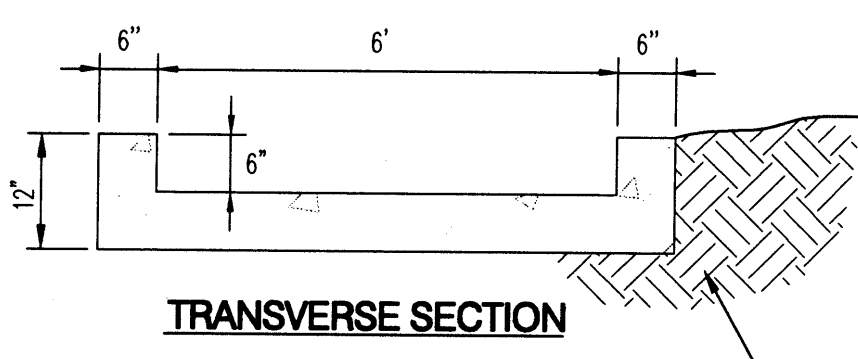
81.67 AS BUILT SPOT ELEVATION

Bohannon & Huston

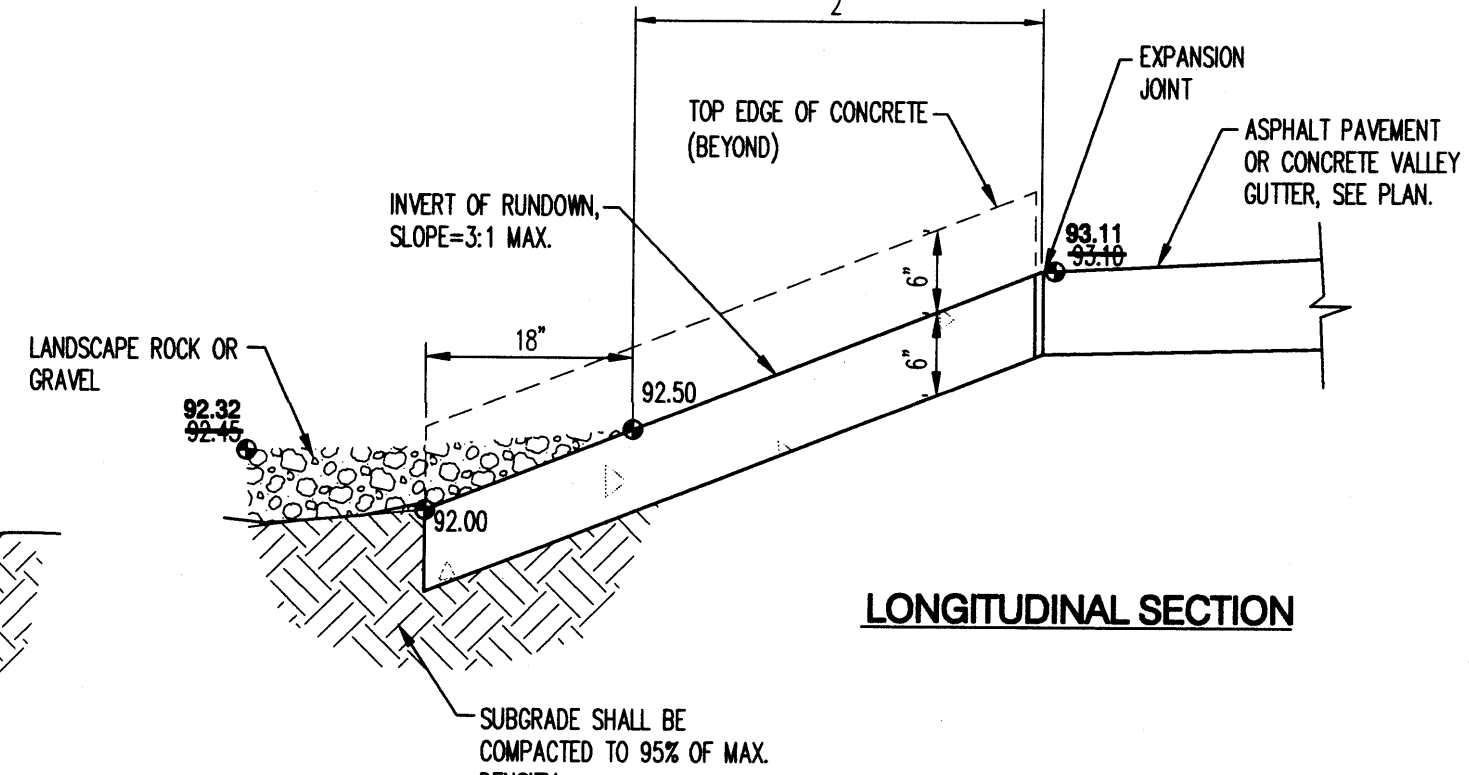
Consulting 7000 Jefferson St. NE Albuquerque, NM 87109-4395
ENGINEERING • SPATIAL DATA • ADVANCED TECHNOLOGIES



TYPICAL VALLEY GUTTER SECTION
CONCRETE FOR ALL VALLEY GUTTERS WILL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3500 PSI IN 24 HOURS.



TRANSVERSE SECTION

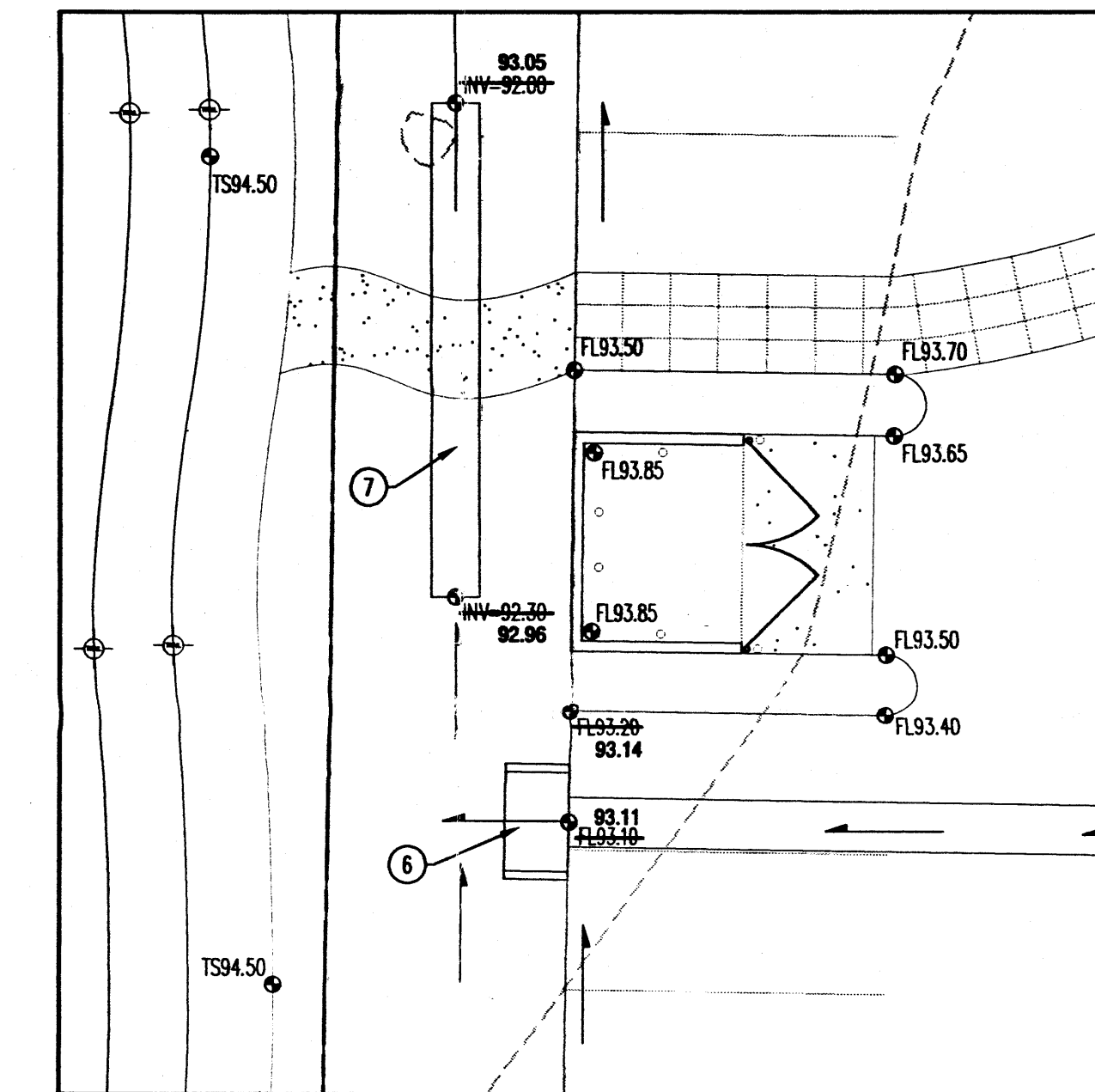
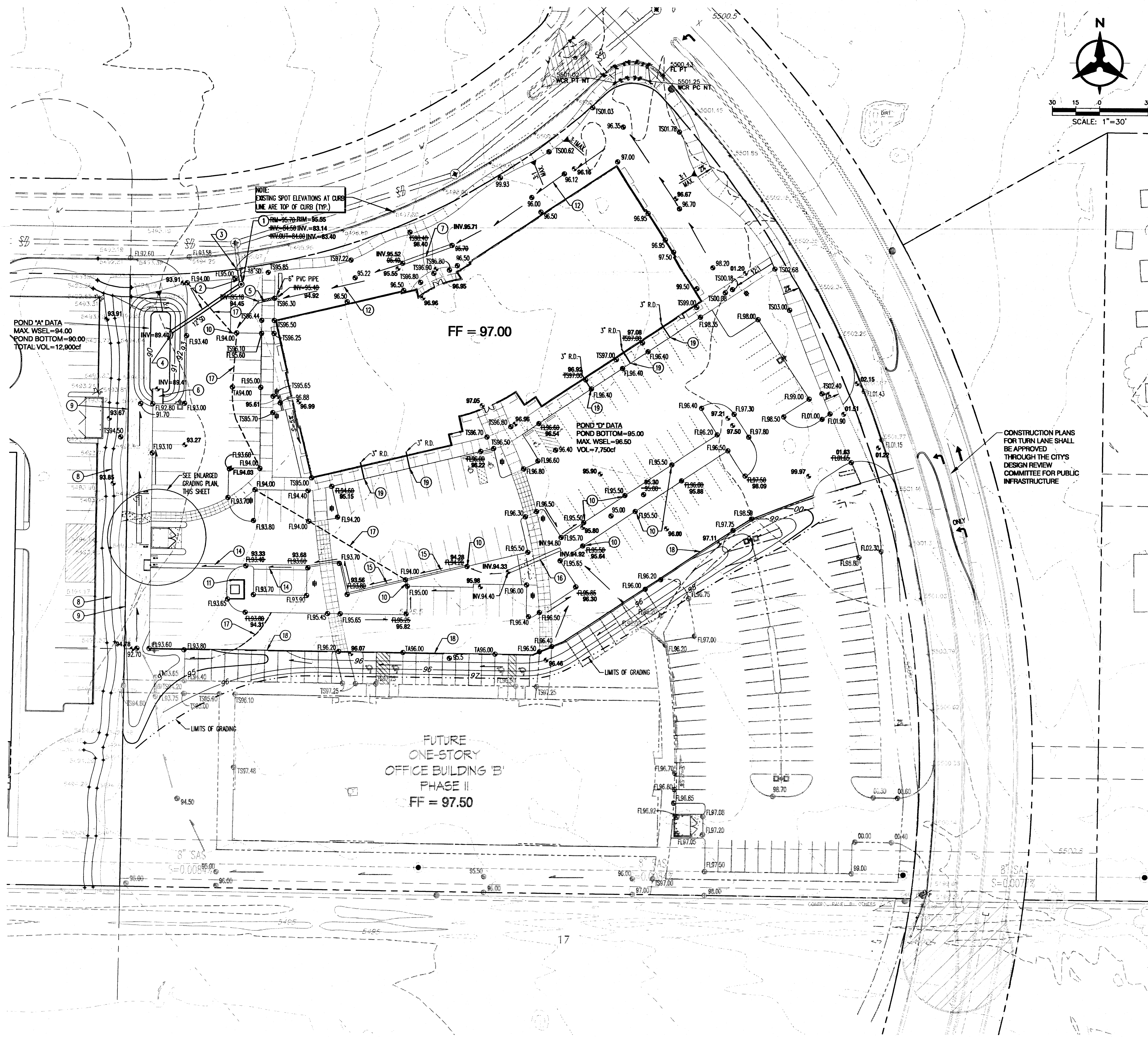
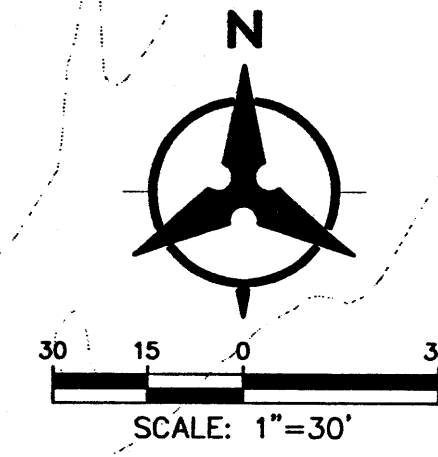


LONGITUDINAL SECTION

CONCRETE RUNDOWN DETAILS
N.T.S.

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ENLARGED GRADING PLAN
SCALE: 1"=10'

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THE FOLLOWING MATTERS SHOULD BE CORRECTED PRIOR TO PERMANENT CERTIFICATE OF OCCUPANCY APPROVAL:

- THE PORTION OF THE SITE BETWEEN THE WEST C JRB LINE AND THE WEST PROPERTY LINE MUST BE REGRADED AS REQUIRED TO MATCH THE GRADES SHOWN ON THE APPROVED GRADING PLAN.

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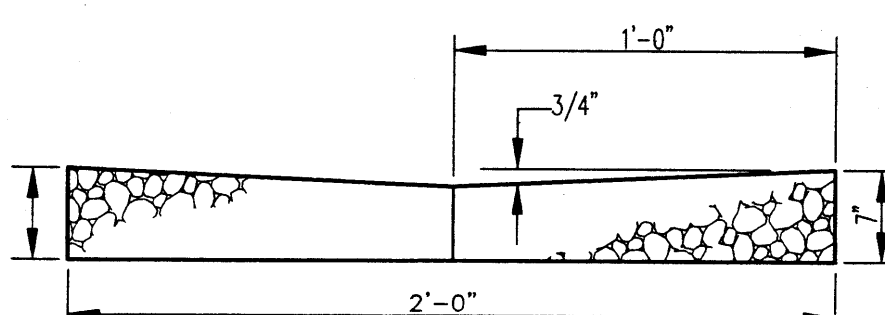
DATE: APRIL 20, 2004



AS BUILT SPOT ELEVATION
81.67

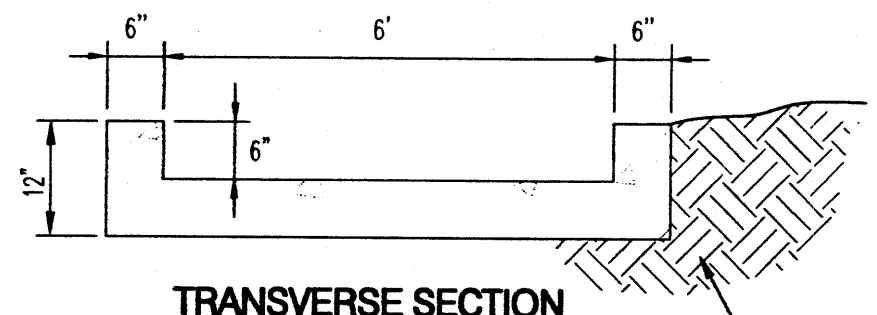
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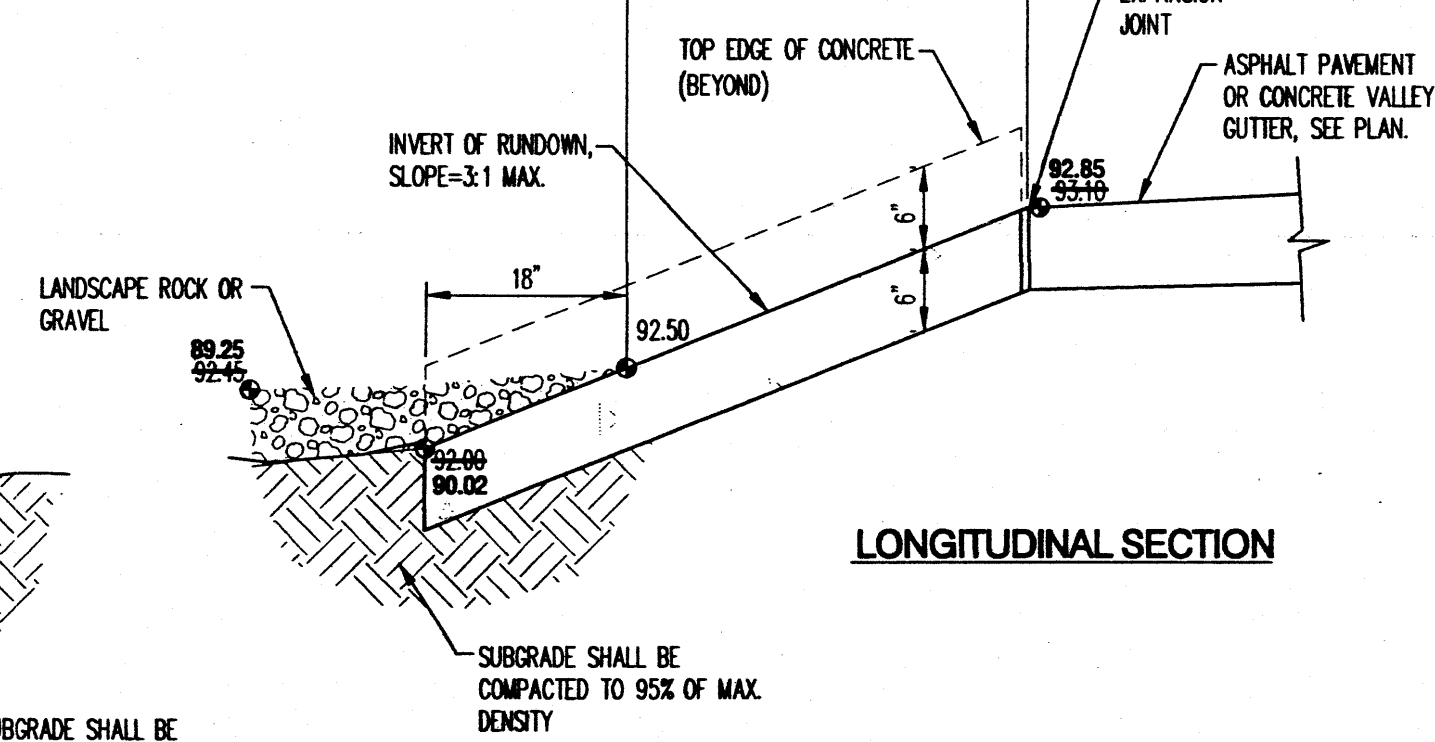


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TRANSVERSE SECTION



LONGITUDINAL SECTION

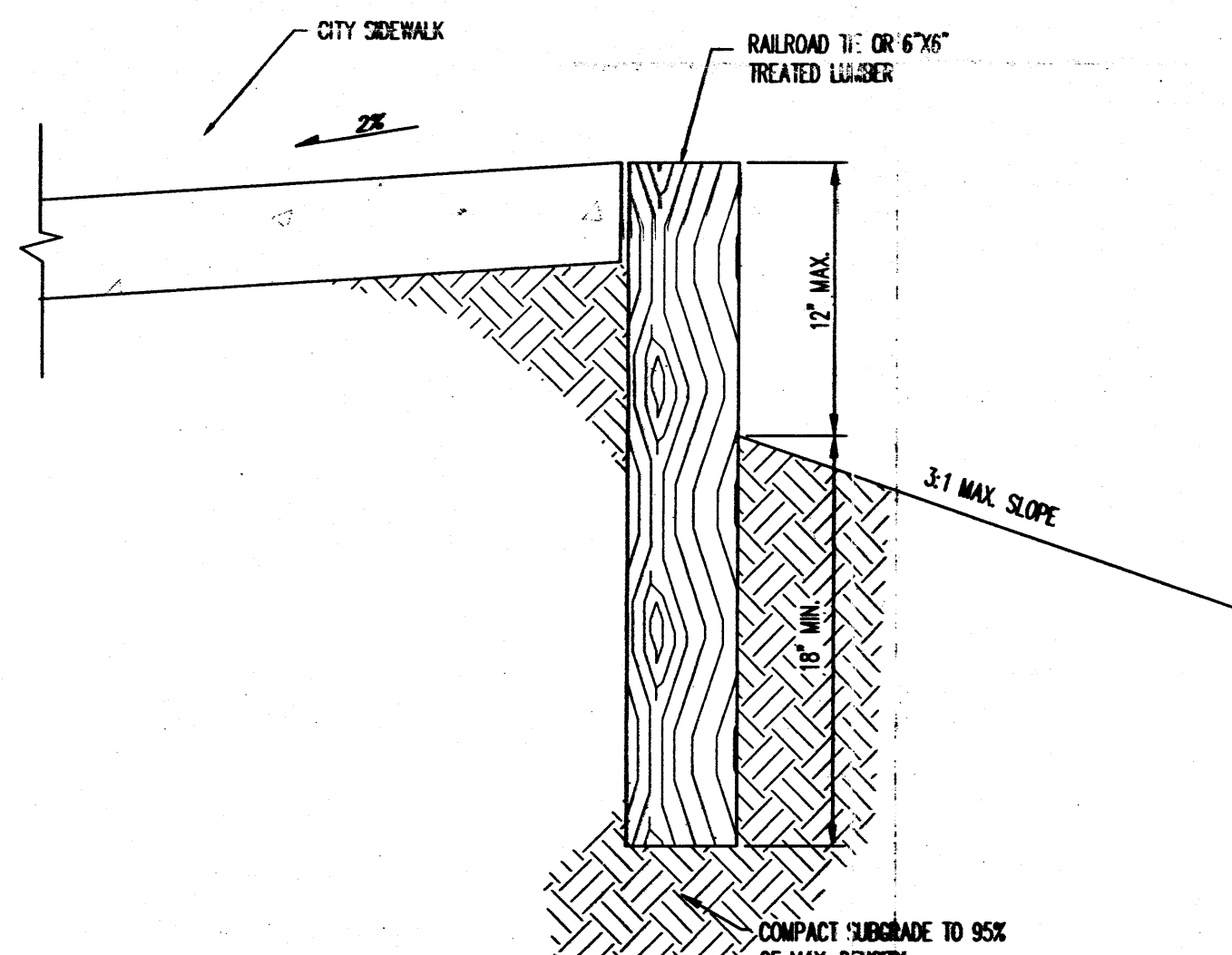
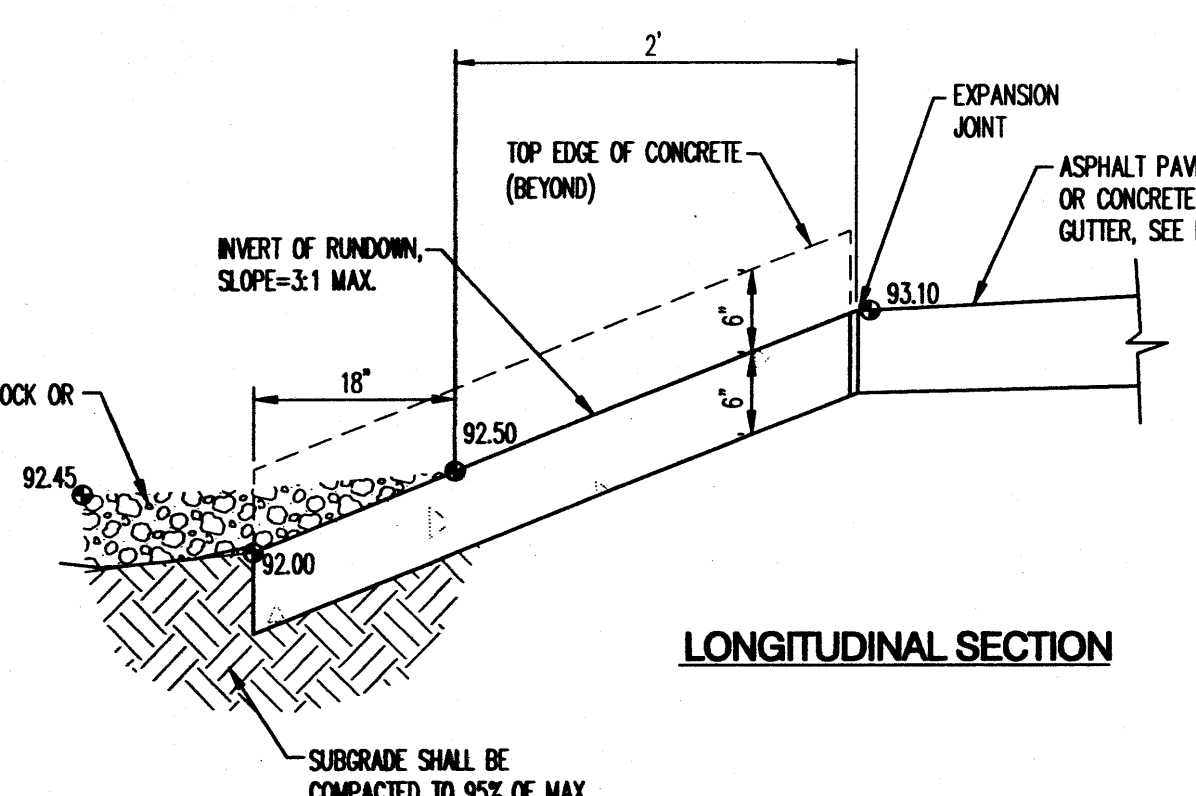
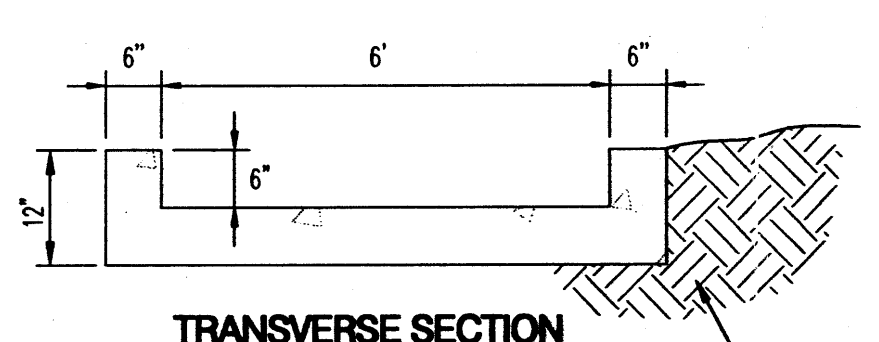
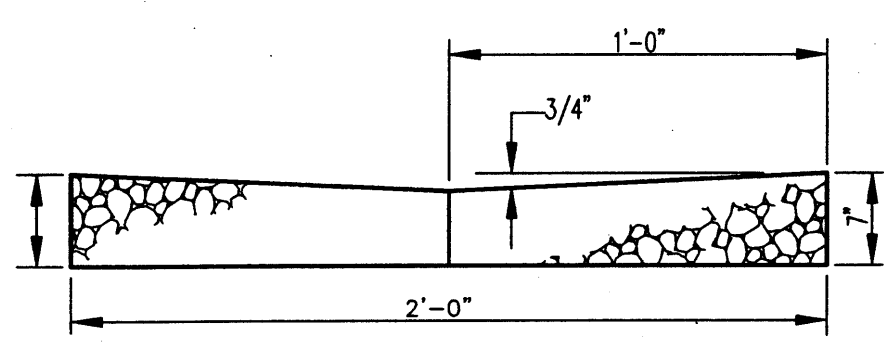
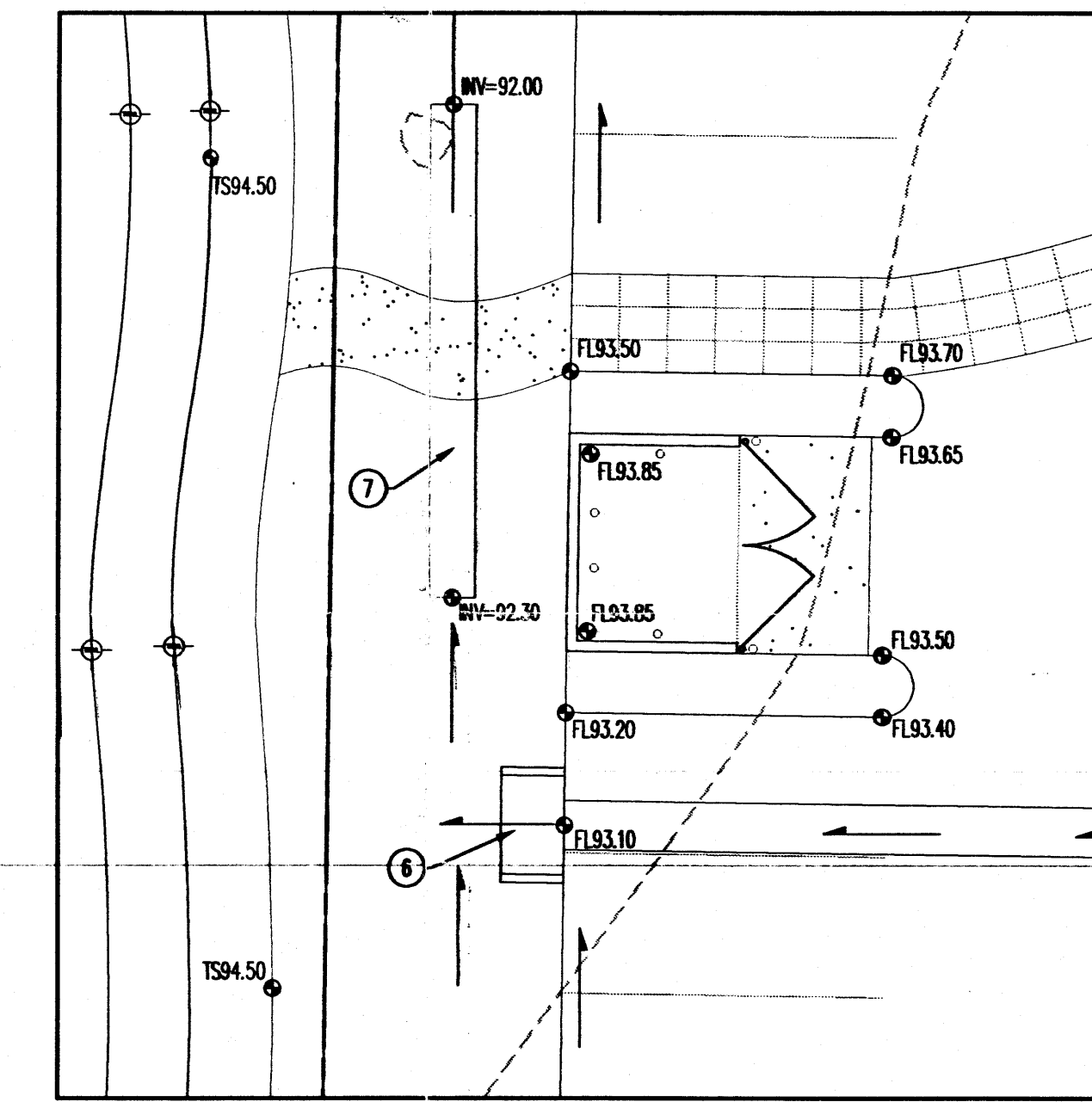
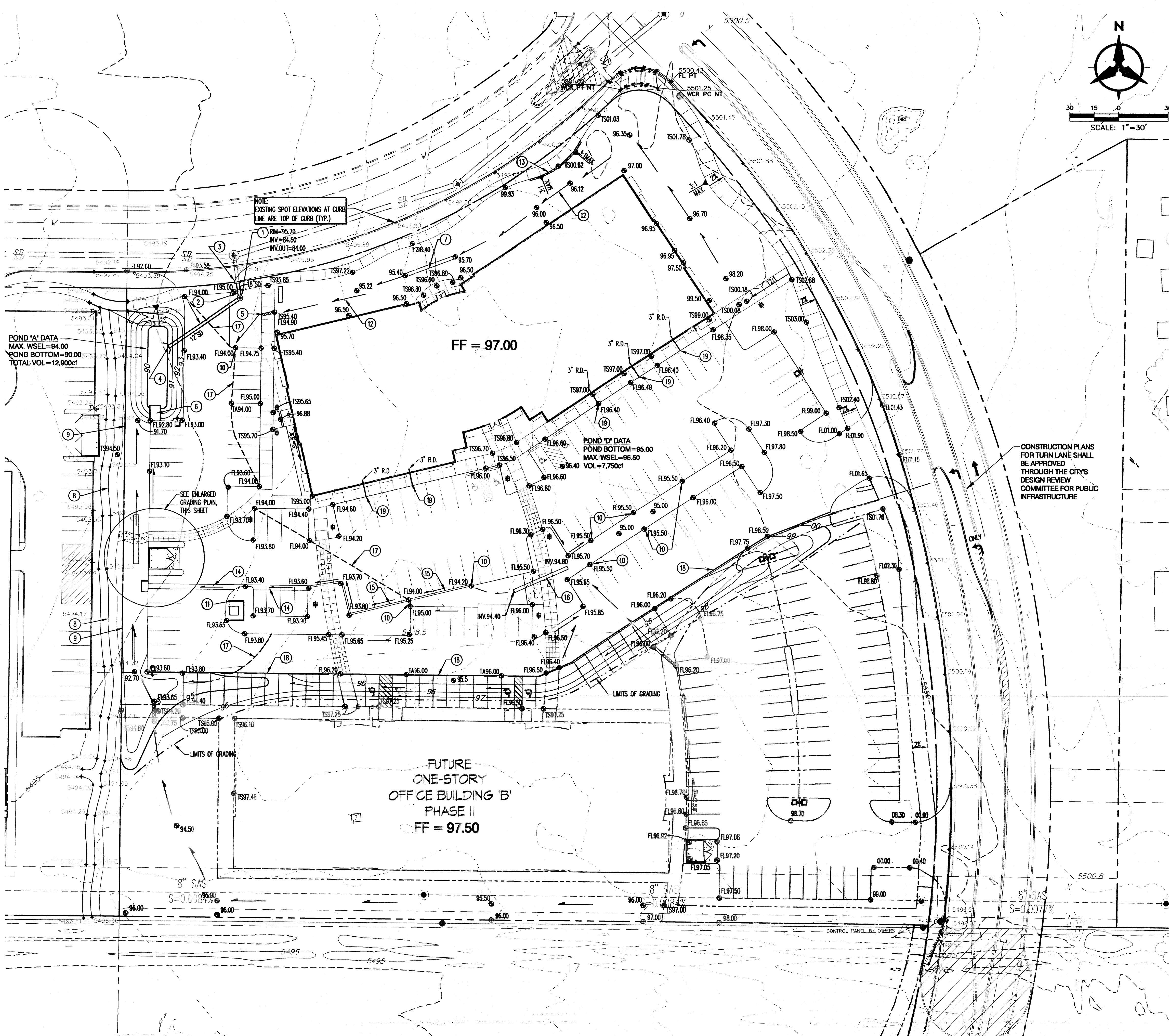
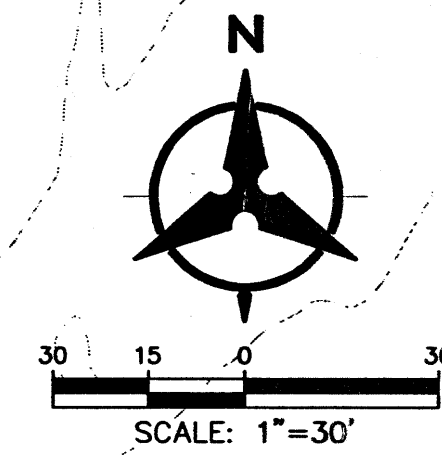
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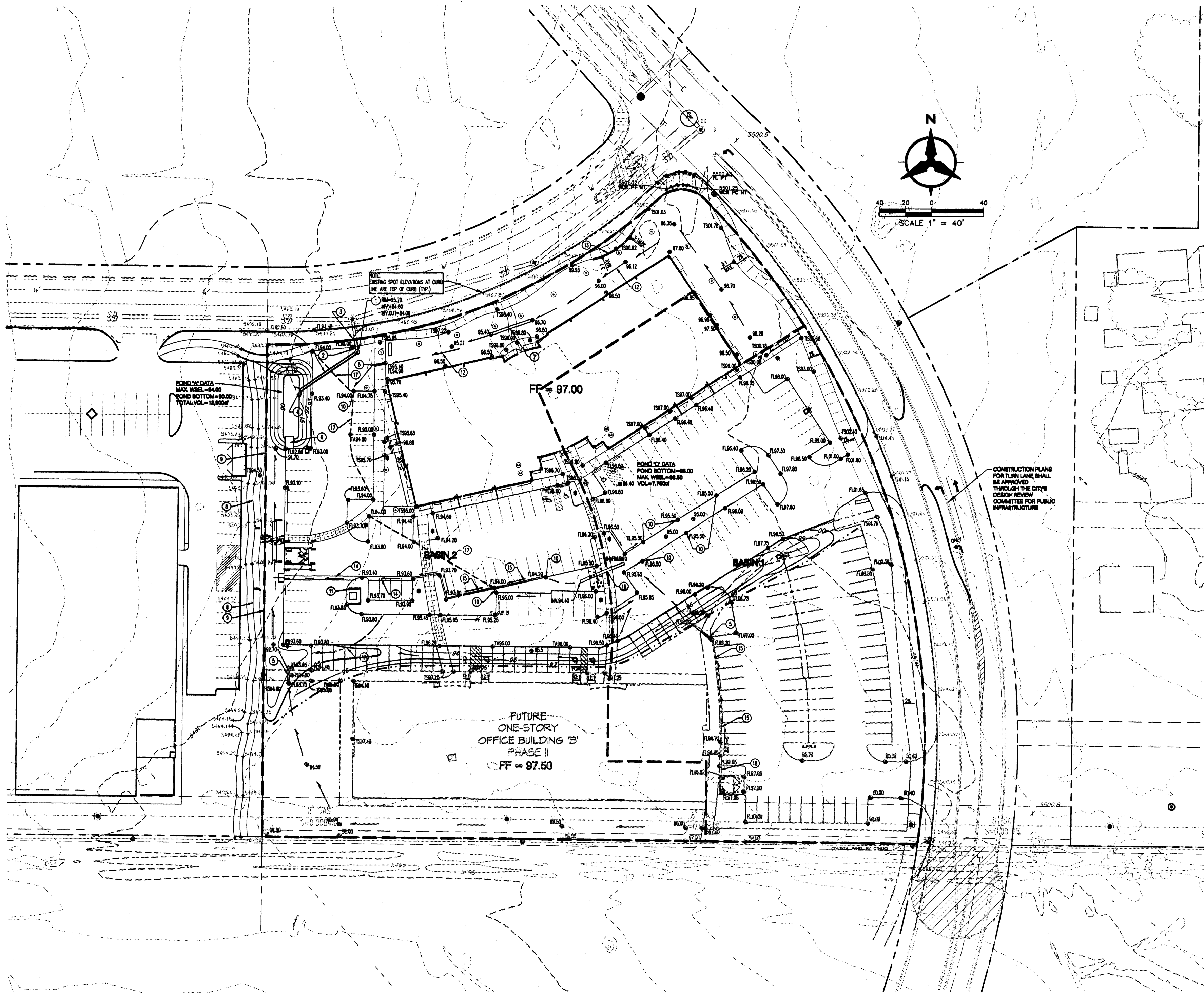
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- DRAINAGE SWALE SHALL BE 13" MIN. FROM FACE OF BUILDING
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- INSTALL 6" EXTRUDED ASPHALT CURB ALONG SOUTH EDGE OF PARKING LOT
- 18" TO 3" ROOF DRAIN, DAYLIGHT AT FACE OF CURB





DRAINAGE MANAGEMENT PLAN

I. INTRODUCTION

The purpose of this submittal is to present a final grading and drainage plan for two one-story buildings and their corresponding parking lots on the corner of Innovation Parkway and Research Road. This submittal is made in order to support building permit approval.

II. SITE LOCATION AND EXISTING CONDITIONS

The project site is located on the southwest corner of Innovation Parkway and Research Road. The site is currently undeveloped with some vegetation present. According to the Federal Emergency Management Agency map 350002 0037C there is not a flood zone within proximity to the site. Runoff currently drains to the west side of the site then north to Research Road. According to the DPM chapter 22.2 - A.6 the existing peak discharge is 10.09cfs. The land treatments used are 85% treatment A and 15% treatment C. The approved master drainage plan for Sandia Science and Technology Park allows a discharge of 1.57cfs per acre. This site is 4.79 acres which results in maximum allowable runoff of 7.52cfs. The site is located within zone atlas map # M-21-Z, and hydrologic zone 3.

III. PROPOSED HYDROLOGIC CONDITIONS

The proposed project consists of two one-story office buildings, a parking lot and landscaping. Basins 1 and 2 will be formed along with two new detention ponds. Drainage from this site will be conveyed by surface flow across the site through these two detention ponds to an existing 18" storm drain pipe that will flow into the existing 36" storm drain in Research Road (Storm drain was constructed under City Project # 672991).

Basin 1: Basin 1 includes the southeast corner of the lot which consists of a portion of both buildings and the parking area along the east side. The total area is 2.02 acres, and according to the DPM chapter 22.2 - A.6 the proposed peak discharge for the 100yr storm event is 9.33cfs. The corresponding land treatments for this site include 10% treatment B, 10% treatment C and 80% impervious land.

Basin 2: Basin 2 includes the remainder of the site which incorporates approximately 2/3 of each building and parking along the west side of the lot, as well as landscaping both north and south of the buildings. The total area is 2.77 acres, and according to the DPM 22.2 - A.6 the proposed peak discharge for the 100yr storm event is 12.80cfs. The corresponding land treatments for this site include 10% treatment B, 10% treatment C, and 80% impervious land.

Due to the design requirements outlined by the Sandia Science and Technology Park, two ponds were formed on site to mitigate flows before entering the storm drain in Research Road. Basin 1 drains into Pond D. Pond D's outflow is controlled with a 12" storm drain pipe. Pond D and Basin 2 will then drain into Pond A. Pond A uses a 12" storm drain to control flow into the existing 18" storm drain that ultimately drains into the 36" storm drain along Research Road. The discharge is regulated by the 12" diameter pipe. This flow was analyzed via AHYMO to be 7.25cfs which is less than the maximum allowable flow of 7.52cfs.

IV. ANALYSIS

The following description of the AHYMO analysis shows the methodology used to analyze the detention volume requirements needed to mitigate the peak discharge below 7.52cfs as required by the SS&TP master drainage plan. Basin 1 (ID=1) was routed through Pond D (ID=51). This hydrograph was added to Basin 2 (ID=51 + ID=2 = ID=21) and routed through Pond A (ID=52). In order to maintain the maximum allowable discharge from Pond A, a 12" culvert pipe was used to restrict the flow. The 12" culvert was analyzed which allowed a discharge of 7.25cfs with a maximum pond storage of .22ac-ft.

The developed condition for the site will conform to the allowable discharge rates specified by the SS&TP master drainage plan. 7.25cfs < 7.52cfs

V. CONCLUSION

Discharge from this site in the developed condition is significantly reduced by the two detention ponds. These ponds ensure the outflow for the 100yr storm event does not surpass the 7.52cfs allowable flow required by the SS&TP. The improvements proposed with this final grading and drainage plan are capable of safely passing the 100 year storm and meet city requirements. With this submittal, we are seeking city hydrology approval for building permit.

○ GRADING & DRAINAGE KEYED NOTES

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10. PROVIDE 18" WIDE CURB OPENING FOR DRAINAGE
11. TRANSFORMER PAD ELEVATION = 94.30
12. DRAINAGE SWALE SHALL BE 13" MIN. FROM FACE OF BUILDING
13. 12" TALL TIMBER RETAINING WALL AS PER DETAIL THIS SHEET.
14. VALLEY GUTTER AS PER DETAIL THIS SHEET.
15. CURB & GUTTER AS PER "MEDIAN CURB AND GUTTER", COA STD. DWG. 2415.
16. 12" STORM DRAIN PIPE. MITER ENDS TO MATCH SLOPE.
17. MAXIMUM THEORETICAL LIMIT OF POND.
18. INSTALL RIBBON CHANNEL AND TURNED BLOCK IN DUMPSTER ENCLOSURE

AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) -									
INPUT FILE = trach.hym									
VERSION: 1997.02c RUN DATE (MON/DAY/YR) = 09/16/2003									
USER NO. = AHYMO-S-9702c1Bohannan-H									
PAGE = 1									
COMMAND	HYDROGRAPH	ID	TO	AREA	PEAK	RUNOFF	TIME	CFS	
	IDENTIFICATION	NO.	NO.	(SQ MI)	DISCHARGE	VOLUME	TO PEAK	PER	
					(CFS)	(AC-FT)	(INCHES)	ACRE	NOTATION
*S AHYMO FILE FOR INNOVATION PARK - ZONE 3, BH PROJ # 04 0088									
*S 6HR, 100YR STORM									
*S Note:									
*S INPUT FILE -- P:\040088\CDP\HYDRO\AHYMO\TRACH.HYM									
*S OUTPUT FILE -- P:\040088\CDP\HYDRO\AHYMO\TRACH.OUT									
LOCATION ALBUQUERQUE									
RAINFALL TYPE= 1									
*S BASIN COMPUTATIONS									
COMPUTE NW HYD	BASIN-1	-	1	.00316	9.34	.354	2.10235	1.500	4.626 PER IMP= 8C 00
COMPUTE NW HYD	BASIN-2	-	2	.00433	12.81	.480	2.10235	1.500	4.623 PER IMP= 8C 00
ROUTE RESERVOIR	POND-D	1	51	.00316	3.74	.354	2.10227	1.733	1.851 AC-FT= .110
ADD HYD		101.00	2&51	21	.00748	16.13	.839	2.10227	1.500 3.367
ROUTE RESERVOIR	POND-A	21	52	.00748	7.25	.839	2.10227	1.900	1.514 AC-FT= .220
FINISH									
RAIN= 2.600									

TRACT H INNOVATION PARK BASIN CALCULATIONS
Basin Data Table

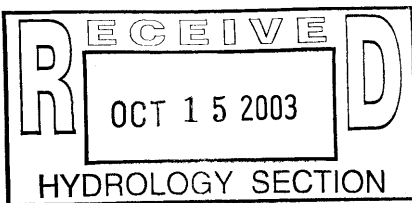
This table is based on the DPM Section 22.2, Zone 3									
BASIN	Area	Area	Land Treatment Percentages				Q(100)	Q(100)	WT E
ID	(SQ. FT)	(AC.)	A	B	C	D	(cfs/ac.)	(cfs)	(inches)
EXISTING	209853	4.79	0.0%	0.0%	15.0%	0.0%	2.1	10.0	0.7
Allowable Runoff Requirements (Sandia Science and Technology Park) 1.57cfs/acre								7.52	
PROPOSED									
BASIN 1	87992	2.02	0.0%	10.0%	10.0%	80.0%	4.62	9.33	2.11
BASIN 2	120662	2.77	0.0%	10.0%	10.0%	80.0%	4.62	12.80	2.11
TOTAL	209853	4.79	0.0%	10.0%	10.0%	80.0%	9.24	22.13	2.11

POND A CALCULATIONS

Orifice Coef	0.62			
Invert of outfall	89.5			
Orifice Diam (in)	12			
Outflow (cfs)	Storage Volume (ft ³)	Storage Volume (Ac- ft)	Elev.	Head (ft)
0.000	0.00	0.0000	90	0.00
3.908	1072.0	0.0246	91	1.00
5.526	3243.0	0.0744	92	2.00
6.768	6705.5	0.1539	93	3.00
7.815	12952.5	0.2973	94	4.00

POND D CALCULATIONS

Orifice Coef.	0.62			
Invert of outfall	94.8			
Orifice Diam (in)	12			
Outflow (cfs)	Storage Volume (ft ³)	Storage Volume (AC- ft)	Elev.	Head (ft)
0.000	0.00	0.0000	95.0	0.00
1.748	275.0	0.00631	95.5	0.20
3.269	2238.4	0.05139	96.0	0.70
4.281	7768.8	0.17835	96.5	1.20



BENCHMARK

ACS ALUMINUM CAP STAMPED "6-121, 1986"
INTERSECTION OF CENTRAL AVE. & ELIZABETH ST.
ELEV.=5503.35 NAVD 88

Bohannon & Huston

Consulting 1700 Jefferson NE Albuquerque, NM 87103-0886
ENGINEERING • SPATIAL DATA • ADVANCED TECHNOLOGIES

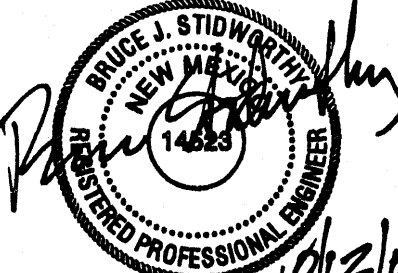
architecture
interiors
planning
engineering

**Dekker
Perich
Sabatini**

6801 Jefferson NE
Suite 100
Albuquerque, NM 87109
505 761-9700
fax 761-4222
dps@dpsobq.com

ARCHITECT

DESIGNER



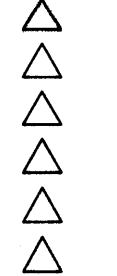
PROJECT

Innovation Park

10700 Research Road
Albuquerque, New Mexico

SANDIA SCIENCE & TECHNOLOGY PARK
LANDSCAPE ARCHITECTS
DESIGN • BUILD • DEVELOP

REVISIONS



DRAWN BY

REVIEWED BY

DATE

PROJECT NO.

DRAINAGE

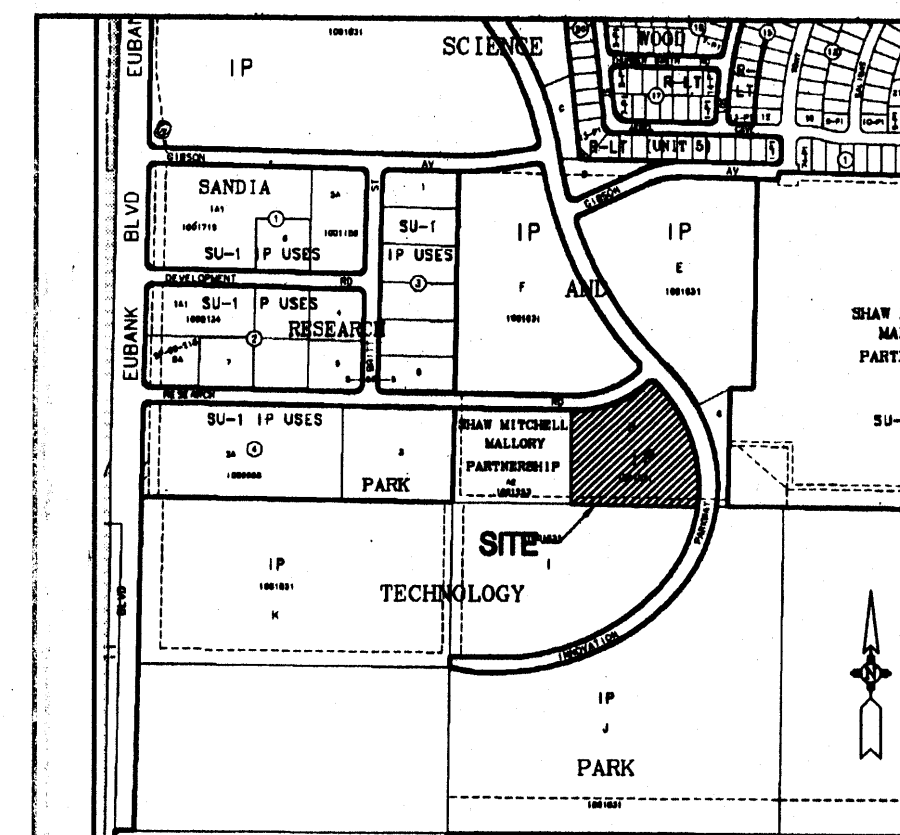
MANAGEMENT

PLAN

SHEET NO.

C101

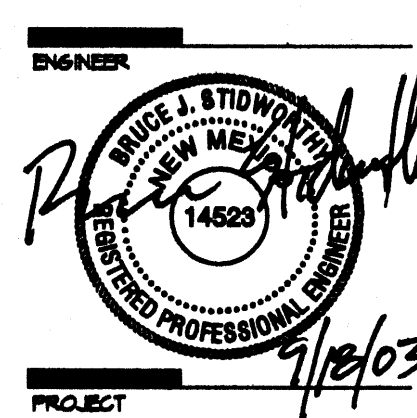
- OF



LOCATION MAP
ZONE ATLAS INDEX MAP No. M-21-Z

LEGAL DESCRIPTION

Tract H, Sandia Science and Technology Park



PROJECT

Innovation Park
10700 Research Road
Albuquerque, New Mexico



REVISIONS

△
△
△
△
△
△
△

DRAWN BY _____
REVIEWED BY EJB
DATE 9/4/03
PROJECT NO. 08040.001
DRAWING NAME DRAINAGE MANAGEMENT PLAN

SHEET NO. C101

GRADING & DRAINAGE KEYED NOTES

1. INSTALL NEW 4" DIA. TYPE "C" STORM DRAIN MANHOLE AS PER COA STD. DWG 2101
2. NEW 18" STORM DRAIN
3. THE NEW 18" STORM DRAIN TO EXISTING STUBOUT. REMOVE & DISPOSE IF EXISTING PLUG. PROVIDE CONCRETE COLLAR AT CONNECTION. INV.=83.47 (INVERT BASED ON AS-BUILTS, CONTRACTOR SHALL VERIFY)
4. DAYLIGHT NEW STORM DRAIN, INSTALL FLARED END SECTION, INV.=89.50.
5. 18" WIDE SIDEWALK CULVERT AS PER COA STD. DWG. 2236
6. CONCRETE RUNDOWN AS PER DETAILS, THIS SHEET. PROVIDE CURB OPENING TO MATCH WIDTH OF RUNDOWN.
7. DAYLIGHT 10" DRAINAGE PIPE. MITER END OF PIPE TO MATCH SLOPE. SEE PLAN FOR INVERT
8. EXISTING CRUSHER FINES PATH SHALL BE REGRADE AND RESURFACED WITH CRUSHER FINES SUCH THAT THE PATH SURFACE = 94.5 OR HIGHER.
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AHYMO PROGRAM SUMMARY TABLE (AHYMO_97) - VERSION: 1997.02c RUN DATE (MON/DAY/YR) = 09/16/2003
INPUT FILE = troach.hym USER NO. = AHYMO-S-9702c1Bohannan-HA

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*S AHYMO FILE FOR INNOVATION PARK - ZONE 3, BH PROJ # 04 1088										
*S 6HR, 100YR STORM										
*S Note:										
*S INPUT FILE --- P:\040088\CDP\HYDRO\AHYMO\TRACH.HYM										
*S OUTPUT FILE --- P:\040088\CDP\HYDRO\AHYMO\TRACH.OUT										
LOCATION ALBUQUERQUE										
RAINFALL TYPE= 1										
*S BASIN COMPUTATIONS										
COMPUTE NW HYD	BASIN-1	-	1	.00316	9.34	354	2.10235	1.500	4.626 PER IMP= 80.0%	
COMPUTE NW HYD	BASIN-2	-	2	.00433	12.61	485	2.10235	1.500	4.623 PER IMP= 80.0%	
ROUTE RESERVOIR	POND-D	1	51	.00316	3.74	354	2.10227	1.733	1.851 AC-FT= .110	
ADD HYD	101.00	2851	21		.00748	16.13	2.10227	1.500	3.367	
ROUTE RESERVOIR	POND-A	21	52	.00748	7.25	.839	2.10227	1.900	1.514 AC-FT= .220	
FINISH										

TRACT H INNOVATION PARK BASIN CALCULATIONS
Basin Data Table

BASIN	Area (SQ. FT)	Area (AC.)	Land Treatment Percentages				Q(100) (cfs/ac.)	Q(100) (cfs)	WT E (Inches)	V(100) ₂₀₀ (CF)
ID			A	B	C	D				
Allowable Runoff Requirements (Sandia Science and Technology Park) 1.67cfs/acre										
PROPOSED										
BASIN 1	87992	2.02	0.0%	10.0%	10.0%	80.0%	4.82	9.33	2.11	15485
BASIN 2	120662	2.77	0.0%	10.0%	10.0%	80.0%	4.82	12.80	2.11	21206

POND A CALCULATIONS

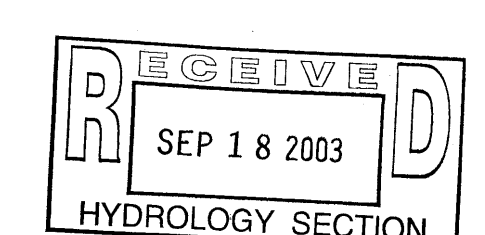
Orifice Coef	0.62
Invert of outfall	89.5
Orifice Diam (in)	12

Outflow (cfs)	Storage Volume (ft ³)	Storage Volume (AC-ft)	Elev.	Head (ft)
0.000	0.00	0.0000	90	0.00
3.908	1072.0	0.0246	91	1.00
5.526	3243.0	0.0744	92	2.00
6.768	6705.5	0.1539	93	3.00
7.815	12952.5	0.2973	94	4.00

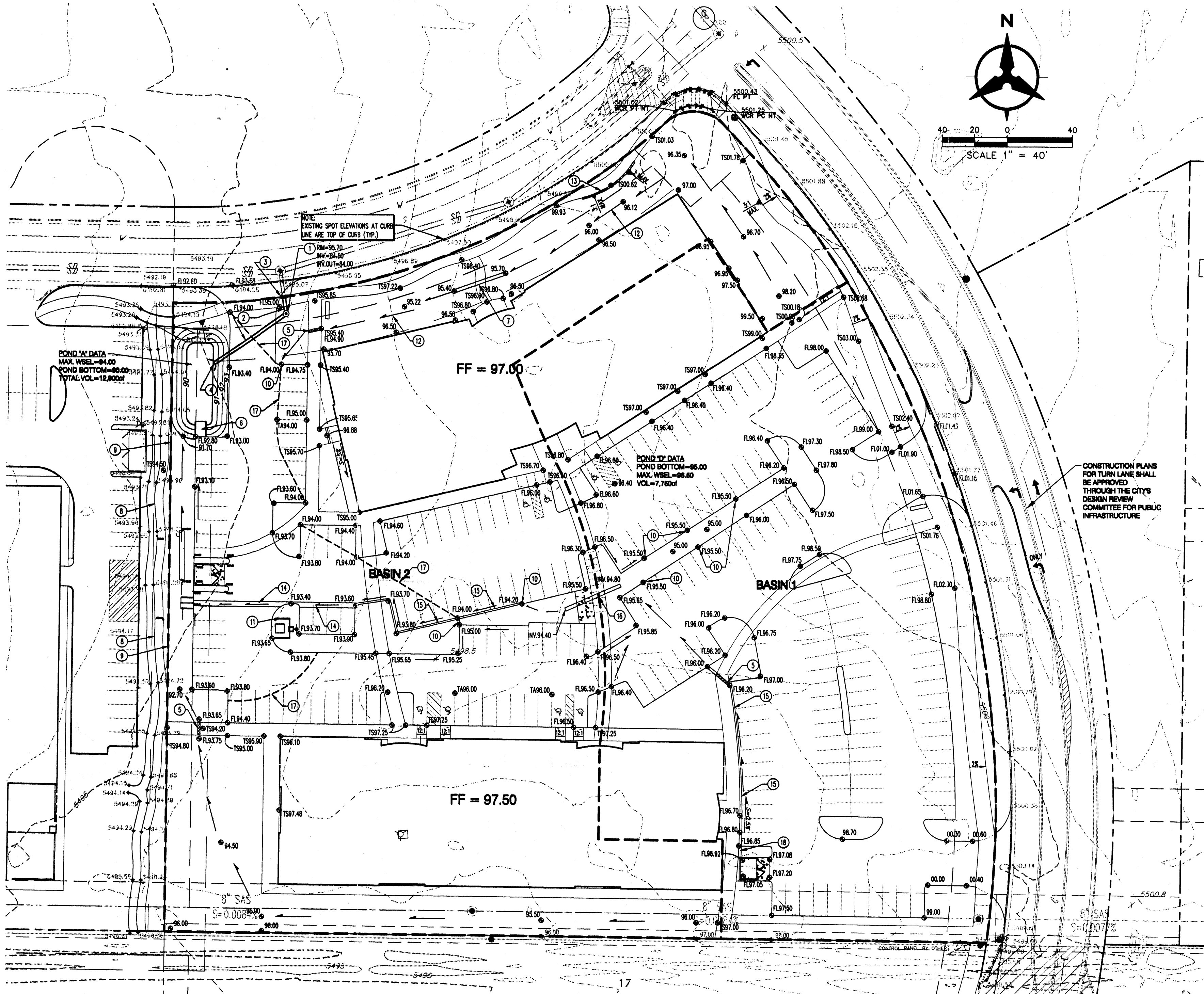
POND D CALCULATIONS

Orifice Coef	0.62
Invert of outfall	94.8
Orifice Diam (in)	12

Outflow (cfs)	Storage Volume (ft ³)	Storage Volume (AC-ft)	Elev.	Head (ft)
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1.748	275.0	0.00631	95.5	0.20
3.269	2238.4	0.05139	96.0	0.70
4.281	7788.8	0.17835	96.5	1.20



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7000 Jefferson NE, Suite 100, Albuquerque, NM 87109-4885
ENGINEERING • SPATIAL DATA • ADVANCED TECHNOLOGIES



DRAINAGE MANAGEMENT PLAN

I. INTRODUCTION

The purpose of this submittal is to present a final grading and drainage plan for two one-story buildings and their corresponding parking lots on the corner of Innovation Parkway and Research Road. This submittal is made in order to support building permit approval.

II. SITE LOCATION AND EXISTING CONDITIONS

The project site is located on the southwest corner of Innovation Parkway and Research Road. The site is currently undeveloped with some vegetation present. Runoff currently drains to the west side of the site then north to Research Road. According to the DPM chapter 22.2 - A.6 the existing peak discharge is 10.09cfs. The land treatments used are 85% treatment A and 15% treatment C. The approved master drainage plan for Sandia Science and Technology Park allows a discharge of 1.57cfs per acre. This site is 4.79 acres which results in maximum allowable runoff of 7.52cfs. The site is located within zone atlas map # M-21-Z, and hydrologic zone 3.

III. PROPOSED HYDROLOGIC CONDITIONS

The proposed project consists of two one-story office buildings, a parking lot and landscaping. Basins 1 and 2 will be formed along with two new detention ponds. Drainage from this site will be conveyed by surface flow across the site through these two detention ponds to an existing 18" storm drain pipe that will flow into the existing 36" storm drain in Research Road (Storm drain was constructed under City Project # 672991).

Basin 1: Basin 1 includes the southeast corner of the lot which consists of a portion of both buildings and the parking area along the east side. The total area is 2.02 acres, and according to the DPM chapter 22.2 - A.6 the proposed peak discharge for the 100yr storm event is 9.33cfs. The corresponding land treatments for this site include 10% treatment B, 10% treatment C and 80% impervious land.

Basin 2: Basin 2 includes the remainder of the site which incorporates approximately 2/3 of each building and parking along the west side of the lot, as well as landscaping both north and south of the buildings. The total area is 2.77 acres, and according to the DPM 22.2 - A.6 the proposed peak discharge for the 100yr storm event is 12.80cfs. The corresponding land treatments for this site include 10% treatment B, 10% treatment C, and 80% impervious land.

Due to the design requirements outlined by the Sandia Science and Technology Park, two ponds were formed on site to mitigate flows before entering the storm drain in Research Road. Basin 1 drains into Pond D. Pond D's outflow is controlled with a 12" storm drain pipe. Pond D and Basin 2 will then drain into Pond A. Pond A uses a 12" storm drain to control flow into the existing 18" storm drain that ultimately drains into the 36" storm drain along Research Road. The discharge is regulated by the 12" diameter pipe. This flow was analyzed via AHYMO to be 7.25cfs which is less than the maximum allowable flow of 7.52cfs.

IV. ANALYSIS

The following description of the AHYMO analysis shows the methodology used to analyze the detention volume requirements needed to mitigate the peak discharge below 7.52cfs as required by the SS&TP master drainage plan. Basin 1 (ID=1) was routed through Pond D (ID=51). This hydrograph was added to Basin 2 (ID=51 + ID=2 = ID=52) and routed through Pond A (ID=52). In order to maintain the maximum allowable discharge from Pond A the existing 18" culvert pipe will need to be restricted. An orifice analysis was performed and a 12" orifice size is required for an allowable discharge of 7.25cfs with maximum pond storage of .22ac-ft.

The developed condition for the site will conform to the allowable discharge rates specified by the SS&TP master drainage plan: 7.25cfs < 7.52cfs

V. CONCLUSION

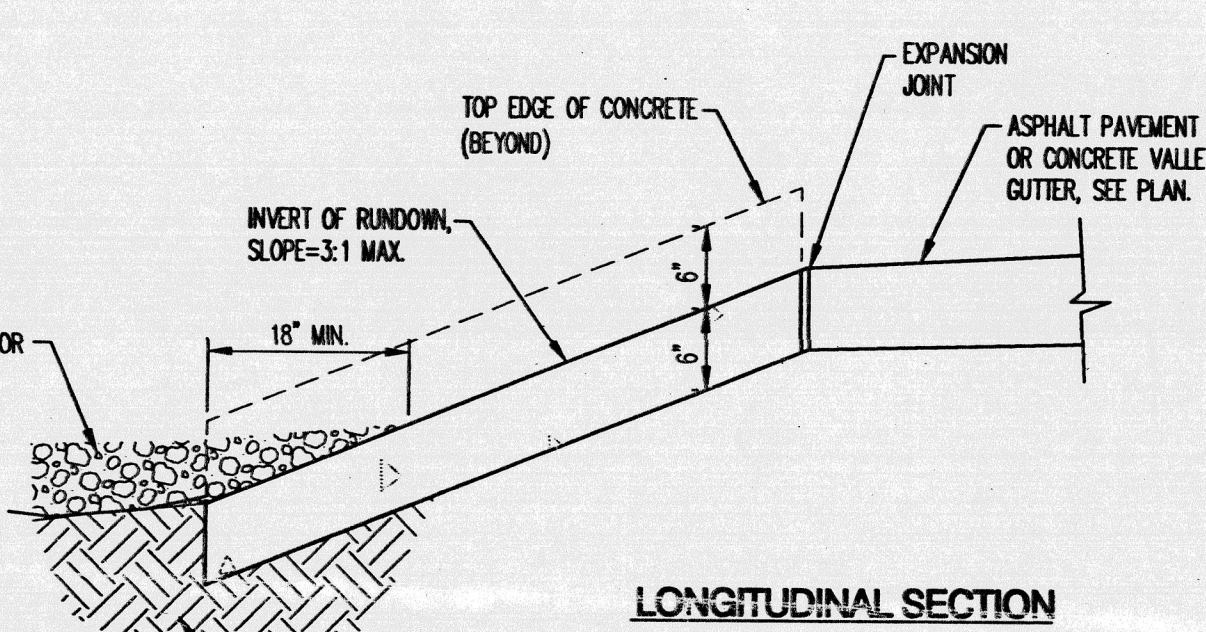
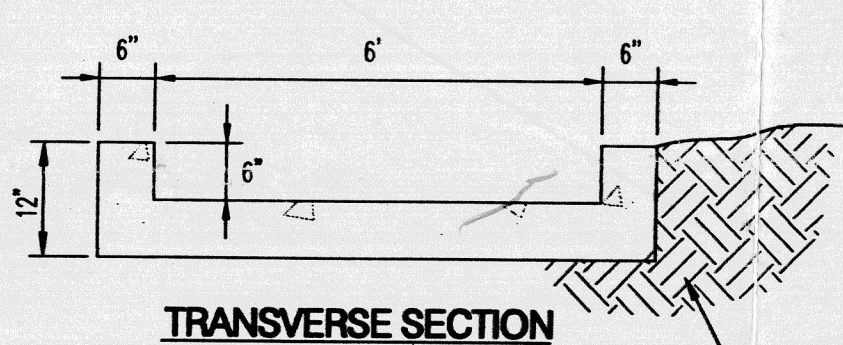
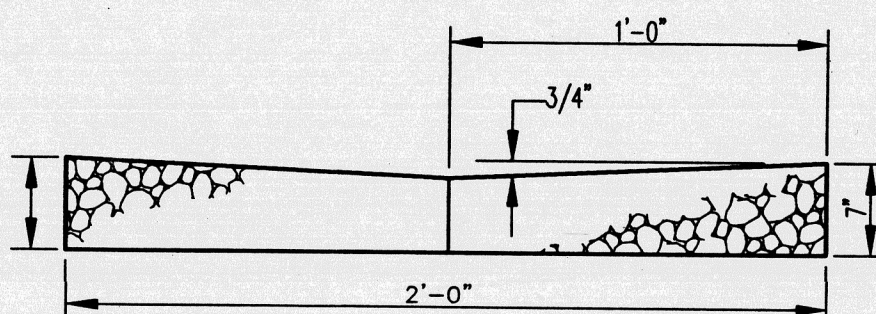
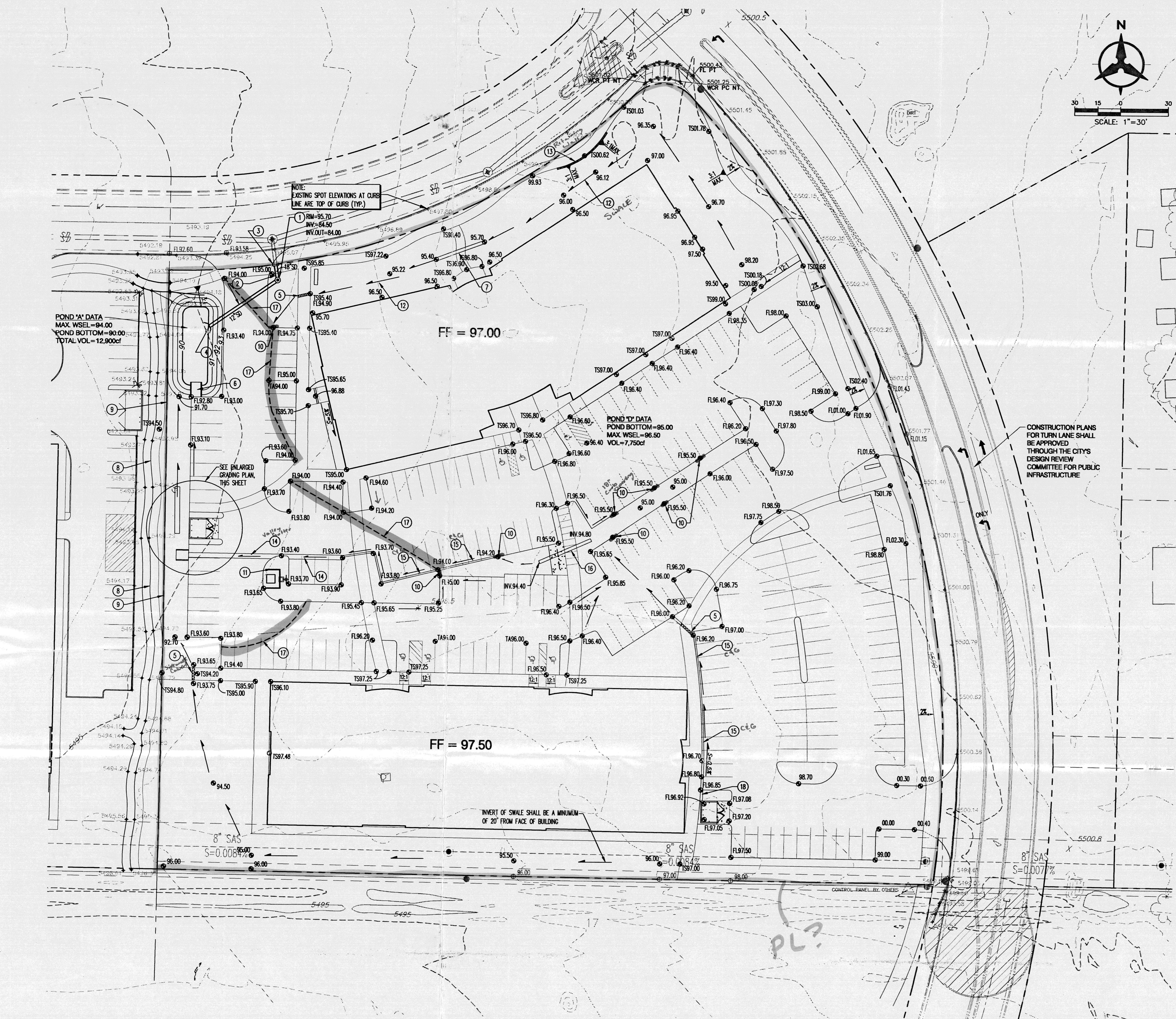
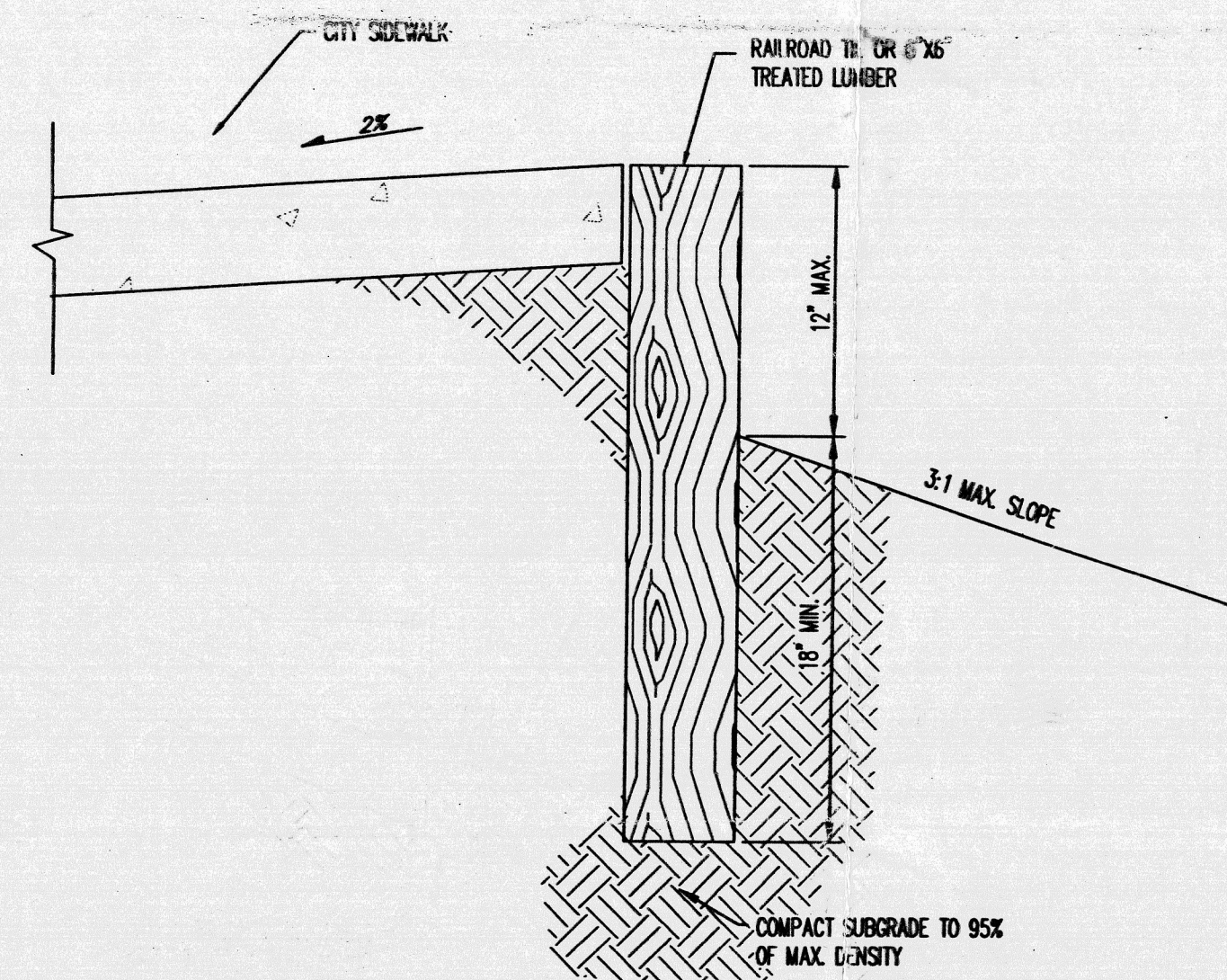
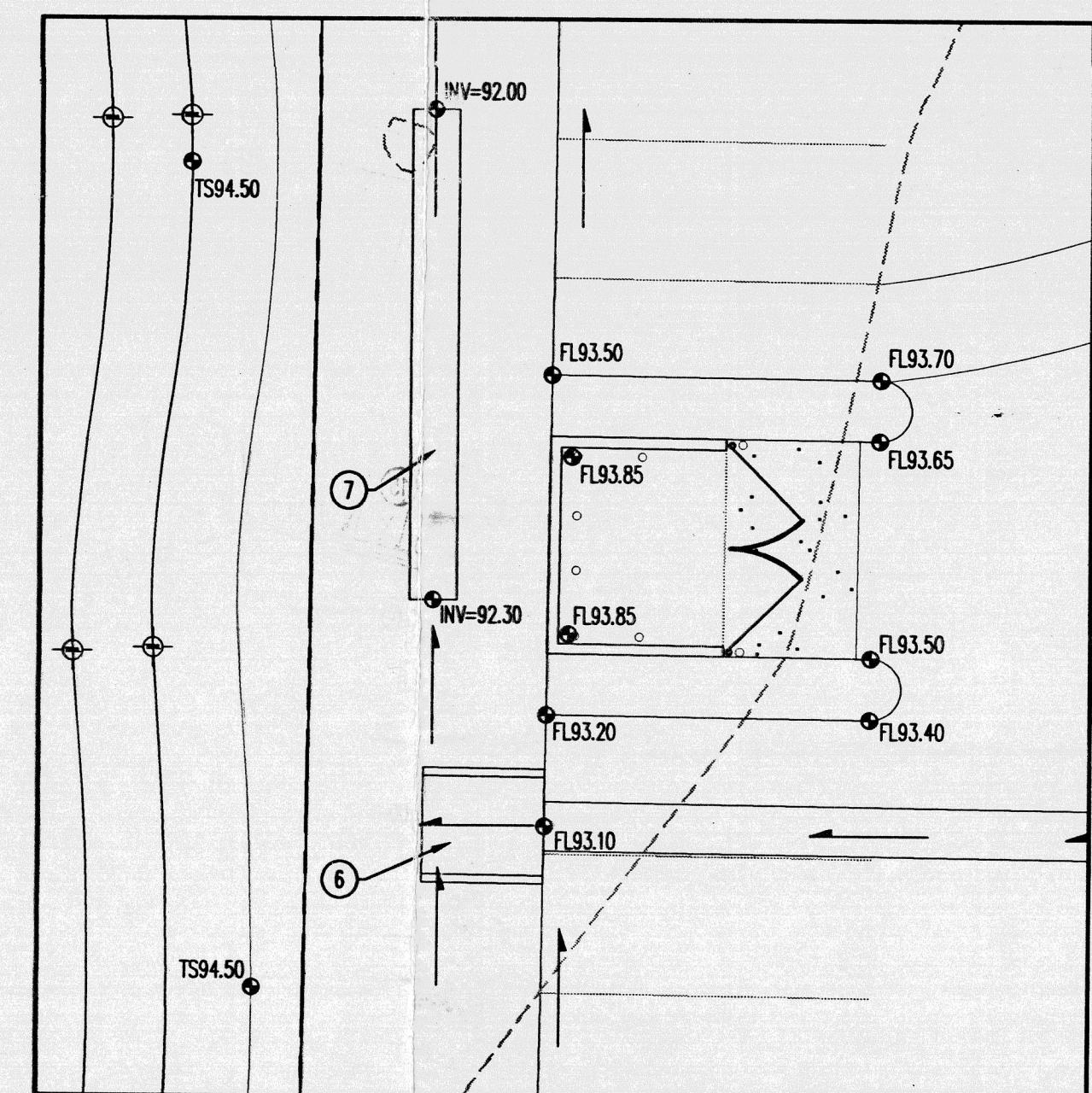
Discharge from this site in the developed condition is significantly reduced by the two detention ponds. These ponds ensure the outflow for the 100yr storm event does not surpass the 7.52cfs allowable flow required by the SS&TP. The improvements proposed with this final grading and drainage plan are capable of safely passing the 100 year storm and meet city requirements. With this submittal, we are seeking city hydrology approval for building permit.

GRADING NOTES

- EXCEPT AS PROVIDED HEREIN, GRADING SHALL BE PERFORMED AT THE ELEVATIONS AND IN ACCORDANCE WITH THE DETAILS SHOWN ON THIS PLAN.
- THE COST FOR REQUIRED CONSTRUCTION DUST AND EROSION CONTROL MEASURES SHALL BE INCIDENTAL TO THE PROJECT COST.
- ALL WORK RELATIVE TO FOUNDATION CONSTRUCTION, SITE PREPARATION, AND PAVEMENT INSTALLATION, AS SHOWN ON THIS PLAN, SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE "GEOTECHNICAL INVESTIGATION," AS PROVIDED BY THE ARCHITECT OR OWNER. ALL OTHER WORK SHALL, UNLESS OTHERWISE STATED OR PROVIDED FOR HEREON, BE CONSTRUCTED IN ACCORDANCE WITH THE PROJECT, (FIRST PRIORITY) SPECIFICATIONS, AND/OR THE CITY OF ALBUQUERQUE (COA) STANDARD SPECIFICATIONS FOR PUBLIC WORKS (SECOND PRIORITY).
- EARTH SLOPES SHALL NOT EXCEED 3 HORIZONTAL TO 1 VERTICAL UNLESS SHOWN OTHERWISE.
- IT IS THE INTENT OF THESE PLANS THAT THIS CONTRACTOR SHALL NOT PERFORM ANY WORK OUTSIDE OF THE PROPERTY BOUNDARIES EXCEPT AS REQUIRED BY THIS PLAN.
- THE CONTRACTOR IS TO ENSURE THAT NO SOIL ERODES FROM THE SITE ONTO ADJACENT PROPERTY OR PUBLIC RIGHT-OF-WAY. THIS SHOULD BE ACHIEVED BY CONSTRUCTING TEMPORARY BARRIERS AT THE PROPERTY LINES PER DETAIL ON SHEET C003 AND NETTING THE SOIL TO PROTECT IT FROM WIND EROSION.
- A DISPOSAL SITE FOR ANY & ALL EXCESS EXCAVATION MATERIAL, AND UNSUITABLE MATERIAL AND/OR A BORROW SITE CONTAINING ACCEPTABLE FILL MATERIAL SHALL BE OBTAINED BY THE CONTRACTOR IN COMPLIANCE WITH APPLICABLE ENVIRONMENTAL REGULATIONS AND APPROVED BY THE OBSERVER. ALL COSTS INCURRED IN OBTAINING A DISPOSAL OR BORROW SITE AND HAUL TO OR FROM SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT AND NO SEPARATE MEASUREMENT OR PAYMENT SHALL BE MADE.
- PAVING AND ROADWAY GRADES SHALL BE +/- 0.1' FROM PLAN ELEVATIONS. PAD ELEVATION SHALL BE +/- 0.05' FROM BUILDING PLAN ELEVATION.
- ALL PROPOSED CONTOURS REFLECT TOP OF PAVEMENT ELEVATIONS IN THE PARKING AREA AND MUST BE ADJUSTED FOR MEDIANS AND ISLANDS.
- VERIFY ALL ELEVATIONS SHOWN ON PLAN FROM BASIS OF ELEVATION CONTROL STATION PRIOR TO BEGINNING CONSTRUCTION.

GRADING & DRAINAGE KEYED NOTES

- INSTALL NEW 4" DIA. TYPE "C" STORM DRAIN MANHOLE AS PER COA STD. DWG. 2101
- NEW 18" STORM DRAIN
- THE NEW 18" STORM DRAIN TO EXISTING STUBOUT. REMOVE & DISPOSE IF EXISTING PLUG. PROVIDE CONCRETE COLLAR AT CONNECTION. INV.=83.47 (INVERT BASED ON AS-BUILTS, CONTRACTOR SHALL VERIFY)
- DAYLIGHT NEW STORM DRAIN, INSTALL FLARED END SECTION, INV.=89.50.
- 18" WIDE SIDEWALK CULVERT AS PER COA STD. DWG. 2236
- CONCRETE RUNDOWN AS PER DETAILS, THIS SHEET. PROVIDE CURB OPENING TO MATCH WIDTH OF RUNDOWN.
- DAYLIGHT 10" DRAINAGE PIPE. WTER END OF PIPE TO MATCH SLOPE. SEE PLAN FOR INVERT
- EXISTING CRUSHER FINES PATH SHALL BE REGRADE AND RESURFACED WITH CRUSHER FINES SUCH THAT THE PATH SURFACE = 94.5 OR HIGHER.
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- MAXIMUM THEORETICAL LIMIT OF POND.
- INSTALL RIBBON CHANNEL AND TURNED BLOCK IN DUMPSTER ENCLOSURE



CONCRETE RUNDOWN DETAILS
N.T.S.