CITY OF ALBUQUERQUE

Planning Department
Alan Varela, Director

Mayor Timothy M. Keller

September 27, 2022

Dean Cardwell, P.E.
Bohler
6017 Main St.
Frisco, TX 75034

RE: KABQ Cargo Facility
3724 Spirit Dr. SE
Revised Grading & Drainage Plans
Engineer's Stamp Date: 08/01/22
Hydrology File: P15D004

Dear Mr. Cardwell:

PO Box 1293

Albuquerque

NM 87103

www.cabq.gov

Based upon the information provided in your submittal received 09/14/2022, the Revised Grading & Drainage Plans are approved for Building Permit. Please attach a copy of this approved plan in the construction sets for Building Permit processing along with a copy of this letter.

PRIOR TO CERTIFICATE OF OCCUPANCY:

1. Engineer's Certification, per the DPM Part 6-14 (F): *Engineer's Certification Checklist For Non-Subdivision* is required.
2. Please provide the Drainage Covenant with Exhibit A for the detention ponds per Article 6-15(C) of the DPM prior to Permanent Release of Occupancy. Please submit the original copies along with the **$ 25.00** recording fee check made payable to Bernalillo County to Carrie Compton (cacompton@cabq.gov) on the 4th floor of Plaza de Sol.

As a reminder, if the project total area of disturbance (including the staging area and any work within the adjacent Right-of-Way) is 1 acre or more, then an Erosion and Sediment Control (ESC) Plan and Owner's certified Notice of Intent (NOI) is required to be submitted to the Stormwater Quality Engineer (Doug Hughes, PE, jhughes@cabq.gov, 924-3420) 14 days prior to any earth disturbance.

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

Sincerely,

Renée C. Brissette

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

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Albuquerque

NM 87103

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City of Albuquerque

Planning Department

Development & Building Services Division

DRAINAGE AND TRANSPORTATION INFORMATION SHEET (REV 10/2018)

Project Title: _____ Building Permit #: 2021-43107 Hydrology File #: _____

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

Legal Description: A 5.00 acre parcel know as Tract A-1 of Sunport Municipal Ground Lease within Tract A-1, Sunport Municipal Addition, in Bernalillo County, State of New Mexico

City Address: 3730 Spirit Drive SE; Albuquerque, NM 87106

Applicant: Bohler Contact: Dean Cardwell

Address: 2600 Network Blvd, Suite 310; Frisco, TX 75034

Phone#: 469-458-7300 Fax#: _____ E-mail: dcardwell@bohlereng.com

Other Contact: Method Architecture Contact: Tom Bartoo

Address: 2140 Rossville Avenue, Suite 101; Chattanooga, TN 37408

Phone#: 423-718-8663 Fax#: _____ E-mail: tbartoo@method-architecture.com

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

IS THIS A RESUBMITTAL? X Yes _____ No

DEPARTMENT: _____TRAFFIC/TRANSPORTATION X HYDROLOGY/DRAINAGE

Check all that Apply:

TYPE OF SUBMITTAL:

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

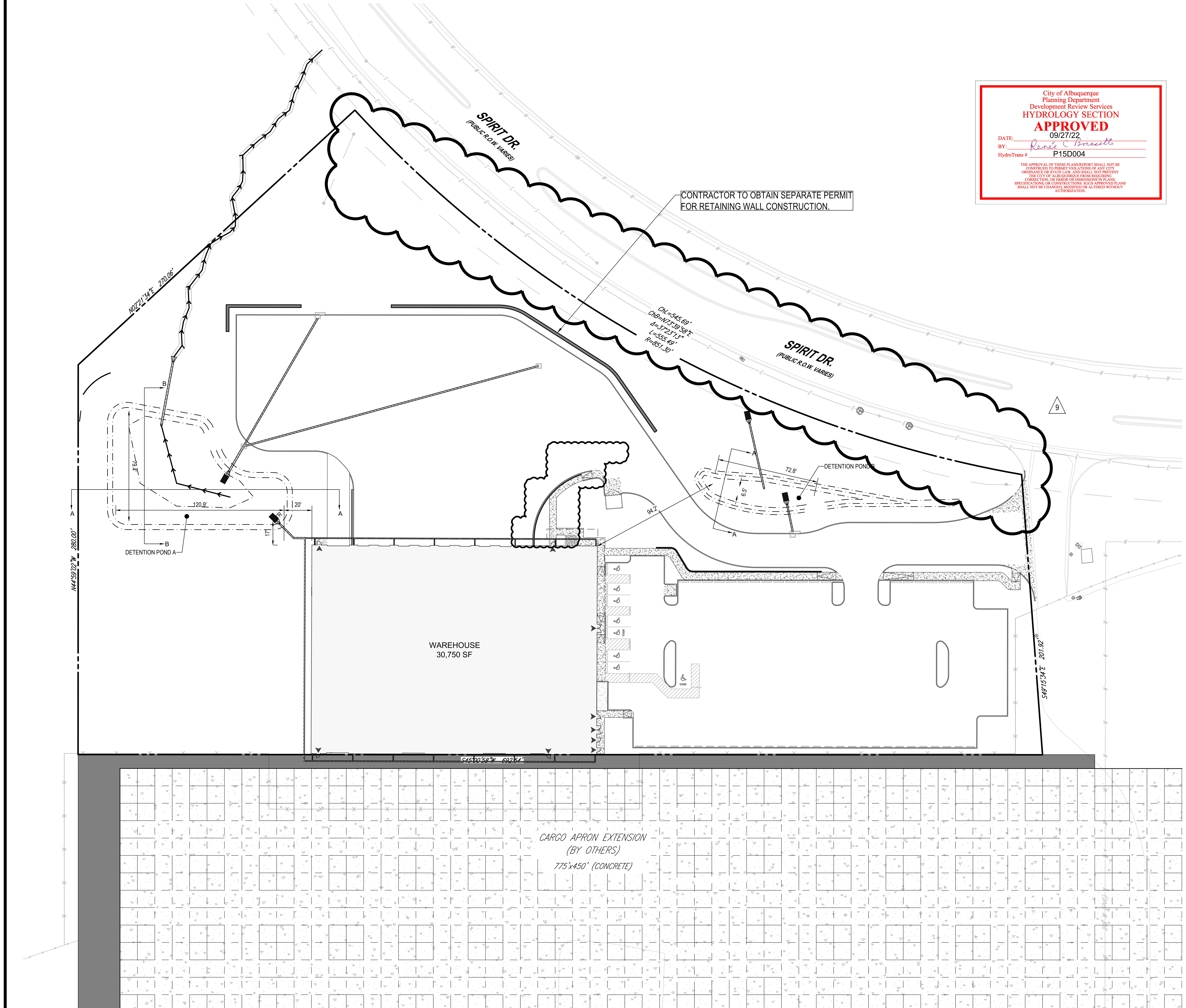
TYPE OF APPROVAL/ACCEPTANCE SOUGHT:

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

DATE SUBMITTED: 9/2/2022 By: Dean Cardwell

COA STAFF: ELECTRONIC SUBMITTAL RECEIVED:_____

FEE PAID:_____



City of Albuquerque
Planning Department
Development Review Services
HYDROLOGY SECTION
APPROVED
DATE: 09/27/22
BY: Renée C Brissette
HydroTrans # P15D004

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VICINITY MAP
IDO ZONE ATLAS NUMBER P-15

SCALE: 1" : 1000'

LEASE DESCRIPTION:

BEGINNING AT THE NORTHEAST CORNER OF THE LEASE, IDENTIFIED AS A , WHICH LAYS APPROXIMATELY S19°01'34"W A DISTANCE OF 5019.24' FROM SURVEY CONTROL POINT "AP-101", WHENCE THE CALCULATED NE CORNER OF SECTION 9 IS S83°44'52"W. A DISTANCE OF 1618.99.

THENCE: S45°00'19"W A DISTANCE OF 692.54' TO THE SOUTHWEST CORNER IDENTIFIED AS B .

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THE ABOVE DESCRIBED LEASE CONTAINS 5.00 ACRES MORE OR LESS.

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TOP CURB / BOTTOM CURB	TC 83.00 / BC 83.00
DRAINAGE ARROW	
SWALE	

GRADING NARRATIVE

EXISTING CONDITIONS

THE PROJECT IS LOCATED ON A 5-ACRE LEASE TRACT WITHIN THE SUNPORT AIRPORT PROPERTY AND IS ON THE SOUTH SIDE OF SPIRIT DRIVE ADJACENT TO SECURITY GATE F-1F. IT WAS USED PREVIOUSLY AS AN AIRPORT VIEWING AREA AND HAS A SMALL GRAVEL DRIVE AND PARKING LOT WHICH ARE LOCATED ON A 'FLAT' AREA ON TOP OF A LARGE SLOPED HILLSIDE DOWN TO SPIRIT DRIVE THE GRADES OF WHICH EXCEED 20% WITH A VERTICAL DROP OF APPROXIMATELY 30'-50'. THE PROJECT IS LOCATED IN ZONE 2 WITH AREAS IN LAND TREATMENT AREAS C AND D. THE EXISTING STORMWATER DISCHARGES UNDETAINED TO A ROADSIDE SWALE ON THE SOUTH SIDE OF SPIRIT DRIVE WHICH IS DIRECTED TO AN INLET NEAR THE INTERSECTION OF SPIRIT DRIVE AND UNIVERSITY BOULEVARD. IN REVIEW OF THE PREVIOUSLY APPROVED DRAINAGE REPORT FOR THE ABQ AIRPORT THE PROJECT IS LOCATED IN SUB-BASIN #1202 WHICH IS THE HEADWATERS FOR DRAINAGE BASIN UE AND HAS A MAXIMUM ALLOWABLE RELEASE RATE OF 2.06 CFS/ACRE FOR THE 100-YEAR 6-HOUR STORM EVENT.

PROPOSED CONDITIONS

THE EXISTING DRAINAGE PATTERNS FOR THE PROJECT WILL REMAIN GENERALLY UNCHANGED. HOWEVER, WITH THE ADDITION OF A BUILDING, PAVED DRIVES AND PARKING LOTS, AND OTHER IMPROVEMENTS THE IMPERVIOUS AREA IS INCREASING SUCH THAT THE STORMWATER RUNOFF IS INCREASING. THIS INCREASE NECESSITATES THE ADDITION OF A DETENTION FACILITY TO PROTECT THE DOWNSTREAM AREAS WITHIN DRAINAGE BASIN UE. IN ADDITION, THE DETENTION FACILITIES WILL BE DESIGNED TO HOLD AND CONTAIN THE STORMWATER QUALITY EVENT. THE PROJECT IS DIVIDED INTO THREE BASIN AREAS, A, B, AND OFFSITE RUNOFF, RESPECTIVELY. OVERALL, THE 100-YEAR FLOW RATE FOR THE PROJECT IS 18.89 CFS WITH A REQUIRED 0.73 AC-FT STORAGE VOLUME. THE FLOW AND STORAGE ARE DIVIDED BETWEEN THREE BASINS AREAS WITH DETAILS AS FOLLOWS:

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GRADING NOTES:

1. SEE PLAN SHEET C-701 FOR DETENTION POND CROSS-SECTIONS.
2. STABILIZE ALL POND SLOPES WITH NATIVE SEED AND AGGREGATE MULCH OR EQUAL (MUST MEET CGP 2.2.14b).
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4. ALL CURBS ARE 6" TALL UNLESS NOTED OTHERWISE.

811

CALL NM ONE-CALL SYSTEM SEVEN (7) DAYS PRIOR TO ANY EXCAVATION

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1"= 40'

CONSULTANTS

BOHLER

SITE CIVIL AND CONSULTING ENGINEERING
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3730 SPIRIT DR. SE
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BENCH MARKS

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NO.	DATE	DESCRIPTION	BY
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AS-BUILT INFORMATION
CONTRACTOR:
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INSPECTOR'S ACCEPTANCE BY: DATE:
FIELD VERIFICATION BY: DATE:
DRAWINGS CORRECTED BY: DATE:

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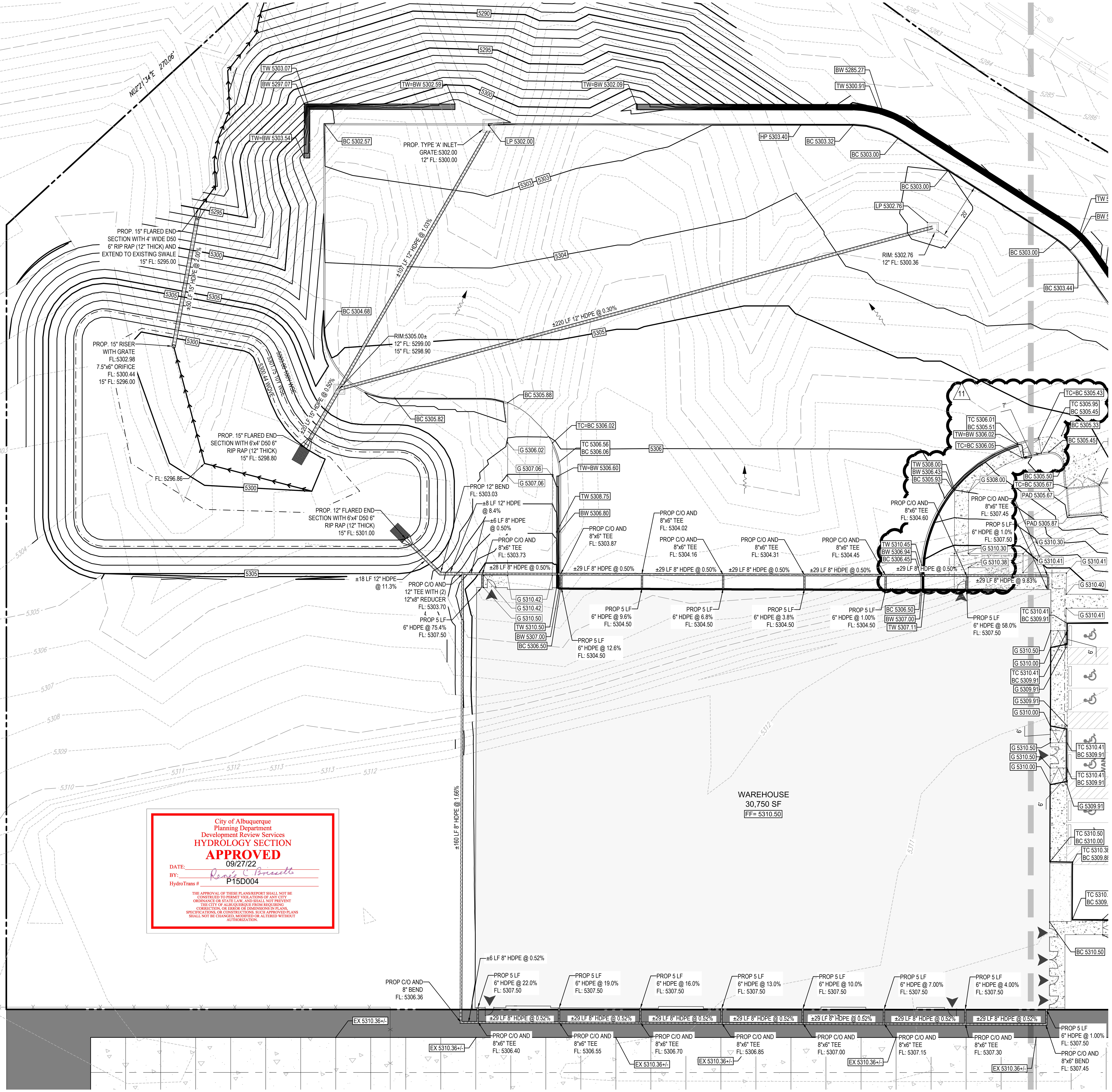
CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT
ENGINEERING DIVISION

OVERALL GRADING AND DRAINAGE PLAN

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL

ZONE MAP NO. NR-SU
CITY PROJECT NO. 000000
SHEET NO. C-300



City of Albuquerque
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Development Review Services
HYDROLOGY SECTION
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HydroTrans # P15D004

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GRADING AND DRAINAGE PLAN
(1 OF 2)

DESIGN REVIEW COMMITTEE | CITY ENGINEER APPROVAL

ZONE MAP NO. NR-SU
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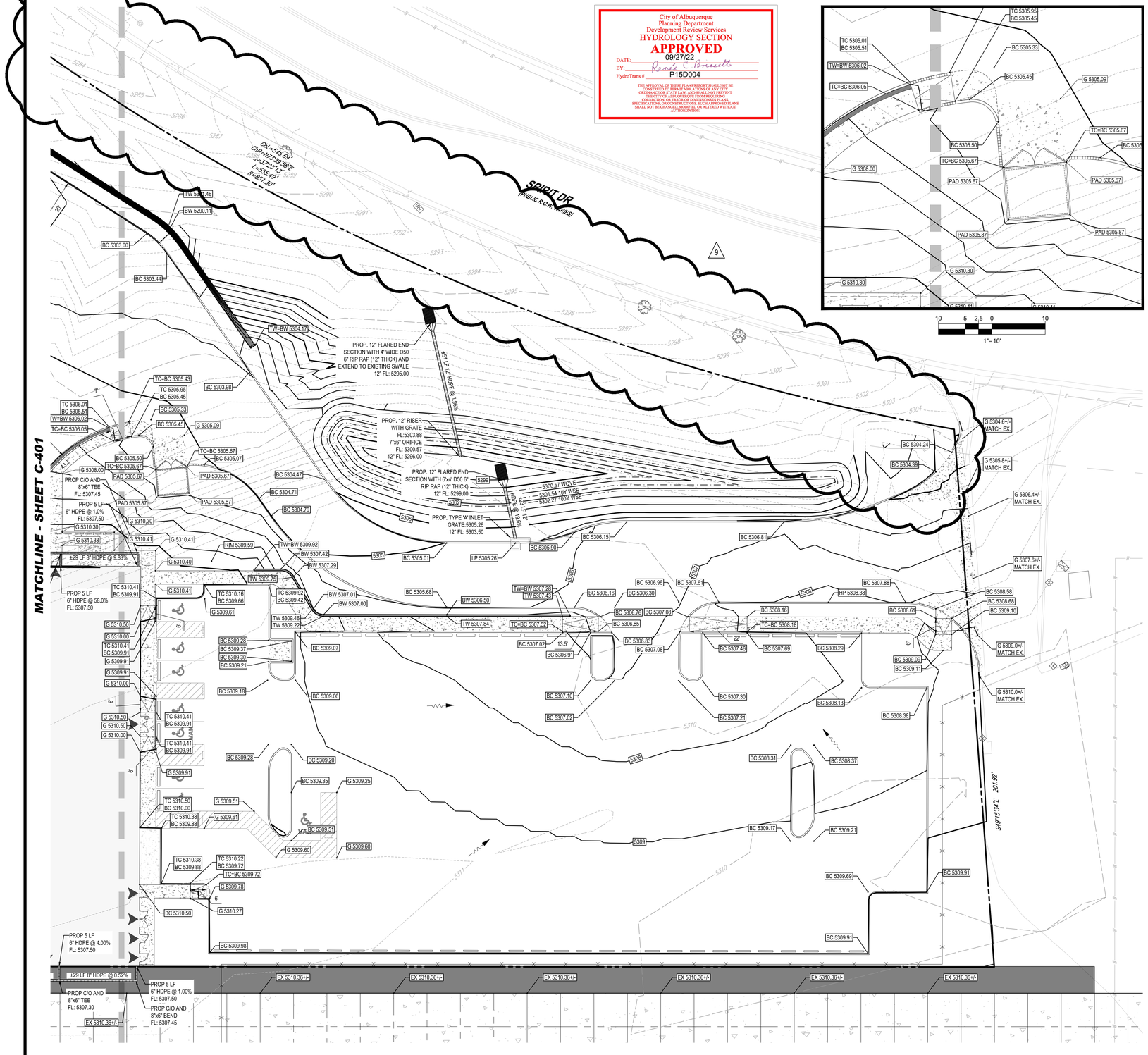
SHEET NO. C-301



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THE PROJECT IS LOCATED ON A 5-ACRE LEASE TRACT WITHIN THE SUNPORT AIRPORT PROPERTY AND IS ON THE SOUTH SIDE OF SPIRIT DRIVE ADJACENT TO SECURITY GATE F-1F. IT WAS USED PREVIOUSLY AS AN AIRPORT VIEWING AREA AND HAS A SMALL GRAVEL DRIVE AND PARKING LOT WHICH ARE LOCATED ON A 'FLAT' AREA ON TOP OF A LARGE SLOPED HILLSIDE DOWN TO SPIRIT DRIVE THE GRADES OF WHICH EXCEED 20% WITH A VERTICAL DROP OF APPROXIMATELY 30'-50'. THE PROJECT IS LOCATED IN ZONE 2 WITH AREAS IN LAND TREATMENT AREAS C AND D. THE EXISTING STORMWATER DISCHARGES UNDETAINED TO A ROADSIDE SWALE ON THE SOUTH SIDE OF SPIRIT DRIVE WHICH IS DIRECTED TO AN INLET NEAR THE INTERSECTION OF SPIRIT DRIVE AND UNIVERSITY BOULEVARD. IN REVIEW OF THE PREVIOUSLY APPROVED DRAINAGE REPORT FOR THE ABQ AIRPORT THE PROJECT IS LOCATED IN SUB-BASIN #1202 WHICH IS THE HEADWATERS FOR DRAINAGE BASIN UE AND HAS A MAXIMUM ALLOWABLE RELEASE RATE OF 2.06 CFS/ACRE FOR THE 100-YEAR 6-HOUR STORM EVENT.

PROPOSED CONDITIONS

THE EXISTING DRAINAGE PATTERNS FOR THE PROJECT WILL REMAIN GENERALLY UNCHANGED. HOWEVER, WITH THE ADDITION OF A BUILDING, PAVED DRIVES AND PARKING LOTS, AND OTHER IMPROVEMENTS THE IMPERVIOUS AREA IS INCREASING SUCH THAT THE STORMWATER RUNOFF IS INCREASING. THIS INCREASE NECESSITATES THE ADDITION OF A DETENTION FACILITY TO PROTECT THE DOWNSTREAM AREAS WITHIN DRAINAGE BASIN UE. IN ADDITION, THE DETENTION FACILITIES WILL BE DESIGNED TO HOLD AND CONTAIN THE STORMWATER QUALITY EVENT. THE PROJECT IS DIVIDED INTO THREE BASIN AREAS, A, B, AND OFFSITE RUNOFF, RESPECTIVELY. OVERALL, THE 100-YEAR FLOW RATE FOR THE PROJECT IS 18.89 CFS WITH A REQUIRED 0.73 AC-FT STORAGE VOLUME. THE FLOW AND STORAGE ARE DIVIDED BETWEEN THREE BASINS AREAS WITH DETAILS AS FOLLOWS:

BASIN AREA A: THIS AREA GENERALLY INCLUDES THE BUILDING, TRUCK COURT, TRUCK DOCKS AND THE MAIN ACCESS DRIVE WHICH IS COMPRISED OF APPROXIMATELY 2.54-ACRES OF THE 5.00-ACRE PROJECT AREA AND WHICH INCLUDES 0.82-ACRES OF TREATMENT C AND 1.72-ACRES OF TREATMENT D LAND AREAS. FOR THE 100-YEAR STORM EVENT THIS GENERATES 9.97 CFS OF STORMWATER FLOW AND REQUIRES 0.40 AC-FT OF DETENTION STORAGE IN POND A OF WHICH 0.059 AC-FT IS RESERVED FOR STORMWATER QUALITY.

BASIN AREA B: THIS AREA GENERALLY INCLUDES THE PARKING LOT AND A PORTION OF THE MAIN ACCESS ROADWAY WHICH IS COMPRISED OF APPROXIMATELY 1.09-ACRES OF THE 5.00-ACRE PROJECT AREA ALL OF WHICH IS TREATMENT D LAND AREA. FOR THE 100-YEAR STORM EVENT THIS GENERATES 4.75 CFS OF STORMWATER FLOW AND REQUIRES 0.21 AC-FT OF DETENTION STORAGE IN POND B OF WHICH 0.031 AC-FT IS RESERVED FOR STORMWATER QUALITY.

OFFSITE RUNOFF: THIS IS THE AREA IS LOCATED BETWEEN THE SITE IMPROVEMENTS AND SPIRIT DRIVE AND WILL GENERALLY CONTINUE TO RUNOFF TO THE ROADSIDE DRAINAGE SWALE ALONG SPIRIT DRIVE SIMILAR TO THE EXISTING CONDITION. IN TOTAL, THERE ARE FOUR SUB-BASINS CONTAINING APPROXIMATELY 1.09-ACRES OF THE 5.00-ACRE PROJECT AREA ALL OF WHICH IS TREATMENT D LAND AREA. FOR THE 100-YEAR STORM EVENT THIS GENERATES 4.18 CFS OF STORMWATER FLOW AND REQUIRES 0.12 AC-FT OF DETENTION STORAGE, OF WHICH THERE IS NO STORMWATER QUALITY REQUIREMENT AS THERE IS NO PERVIOUS AREA IN THIS BASIN. ADDITIONALLY, THERE IS NO DETENTION FACILITY FOR THIS BASIN, THEREFORE, POND A AND POND B HAVE BEEN OVERSIZED TO ACCOUNT FOR THE VOLUME REQUIREMENTS OF THIS BASIN.

ONE OTHER ITEM OF NOTE, THE PREVIOUSLY APPROVED STUDY FOR THE AIRPORT RESTRICTS THE RELEASE RATE FOR THIS SITE TO 2.06 CFS/ACRE, OR 10.30 CFS FOR THE 5-ACRE PROJECT. AS NOTED ABOVE, THE CALCULATED RUNOFF TOTALS 18.89 CFS. THIS HAS BEEN ACCOUNTED FOR IN THE POND ROUTING MODEL FOR POND A AND POND B AS PERFORMED WITH HEC_HMS.

GRADING NOTES:

1. SEE PLAN SHEET C-701 FOR DETENTION POND CROSS-SECTIONS.
2. STABILIZE ALL POND SLOPES WITH NATIVE SEED AND AGGREGATE MULCH OR EQUAL (MUST MEET CGP 2.2.14b).
3. FEDERAL EMERGENCY MANAGEMENT AGENCY, FEMA FIRMETTE PUBLISHED 09/14/2021, REFERENCING FLOOD INSURANCE RATE MAP, MAP NUMBER 35001C0344G EFFECTIVE DATE 09/26/2008, INDICATES THIS PARCEL OF LAND IS LOCATED IN ZONE X (AREA OF MINIMAL FLOOD HAZARD).
4. ALL CURBS ARE 6" TALL UNLESS NOTED OTHERWISE.

811

CALL NM ONE-CALL
SYSTEM SEVEN (7) DAYS
PRIOR TO ANY EXCAVATION

CONSULTANTS

BOHLER
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LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

KABQ CARGO FACILITY

3730 SPIRIT DR. SE
Albuquerque, NM 87106

BENCH MARKS

BM#1
TOP OF SANITARY
SEWER MANHOLE
ELEVATION = 5284.30'

BM#2
NO. 4 REBAR W/ CAP IN RAW LAND
NORTHING: 465944.03'
EASTING: 386672.45'
ELEVATION: 5298.69'

BM #3
NO. 4 REBAR W/ CAP IN RAW LAND
NORTHING: 466213.90'
EASTING: 386683.57'
ELEVATION: 5270.95'

BM #4
NO. 4 REBAR W/CAP IN RAW LAND
NORTHING: 466367.43'
EASTING: 387207.10'
ELEVATION: 5304.16'

SEAL

DEAN O. CARDWELL
NEW MEXICO
24039
PROFESSIONAL ENGINEER
8.1.22

NO.	DATE	DESCRIPTION	BY
8	07/11/22	WHEEL STOP ADDITION & RAMP DETAILS	
9	07/15/22	SIDEWALK REMOVAL	
10	07/18/22	FORKLIFT RAMP PAVEMENT	
11	08/01/22	DUMPSTER PATH SIDEWALK GRADING	

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FIELD VERIFICATION BY: DATE:
DRAWINGS CORRECTED BY: DATE:

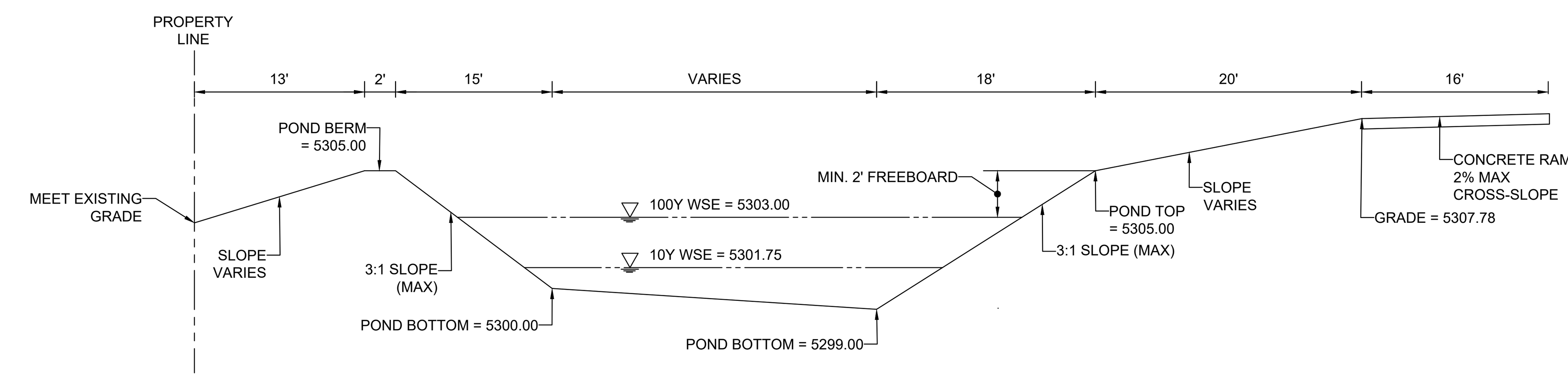
DESIGNED BY: JJB
DRAWN BY: JJB
CHECKED BY: DOC
DATE 08/2022

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT
ENGINEERING DIVISION

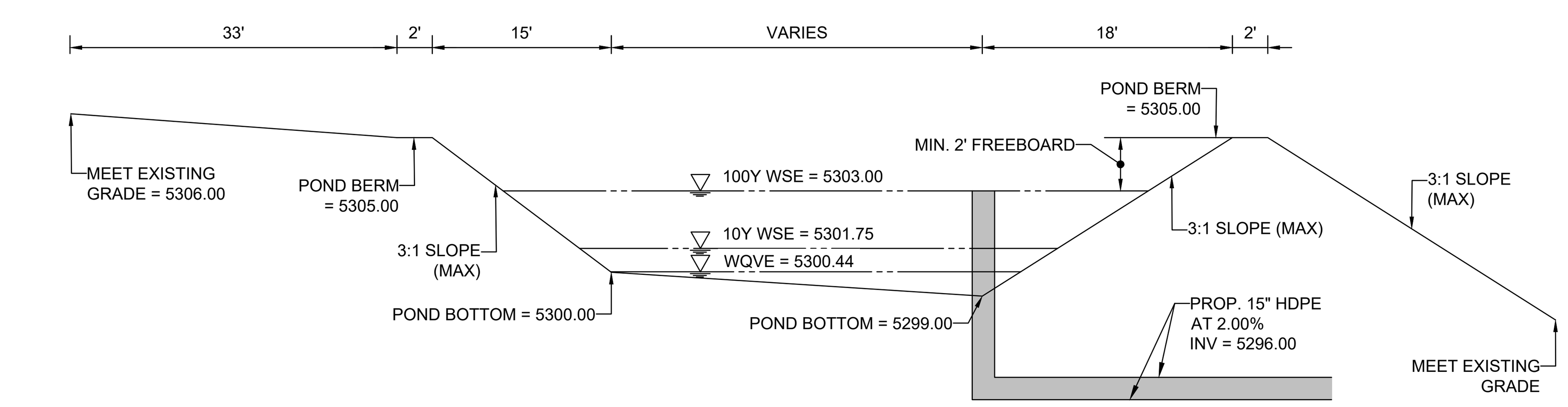
GRADING AND DRAINAGE PLAN
(2 OF 2)

DESIGN REVIEW COMMITTEE
CITY ENGINEER APPROVAL

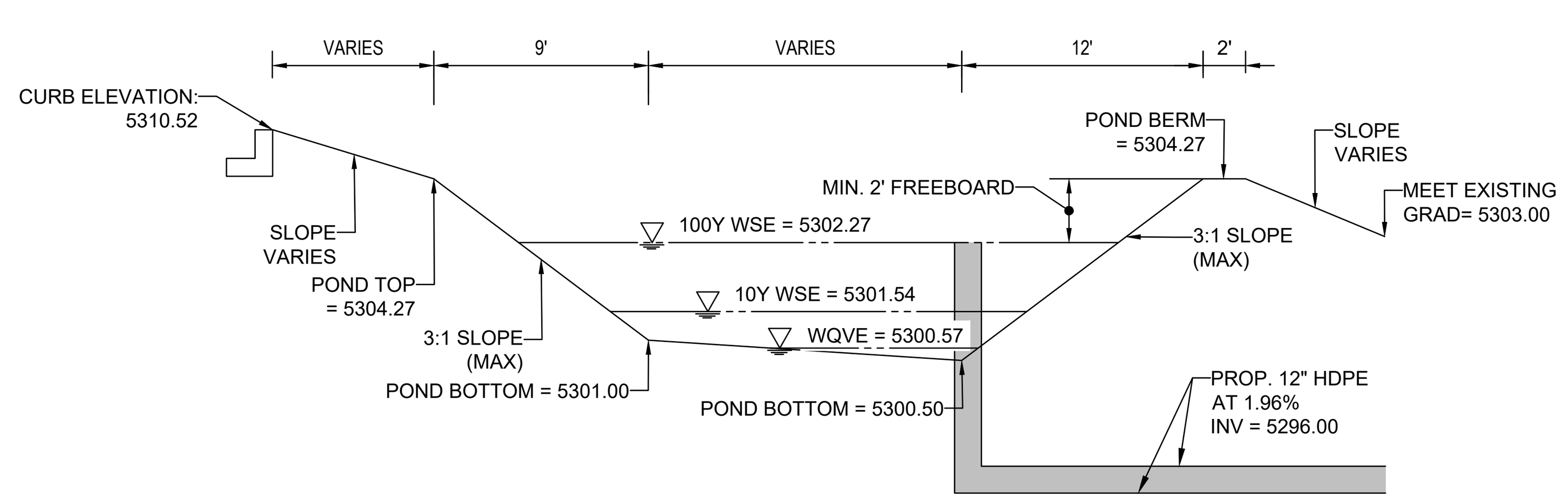
ZONE MAP NO. NR-SU
CITY PROJECT NO. 000000
SHEET NO. C-302



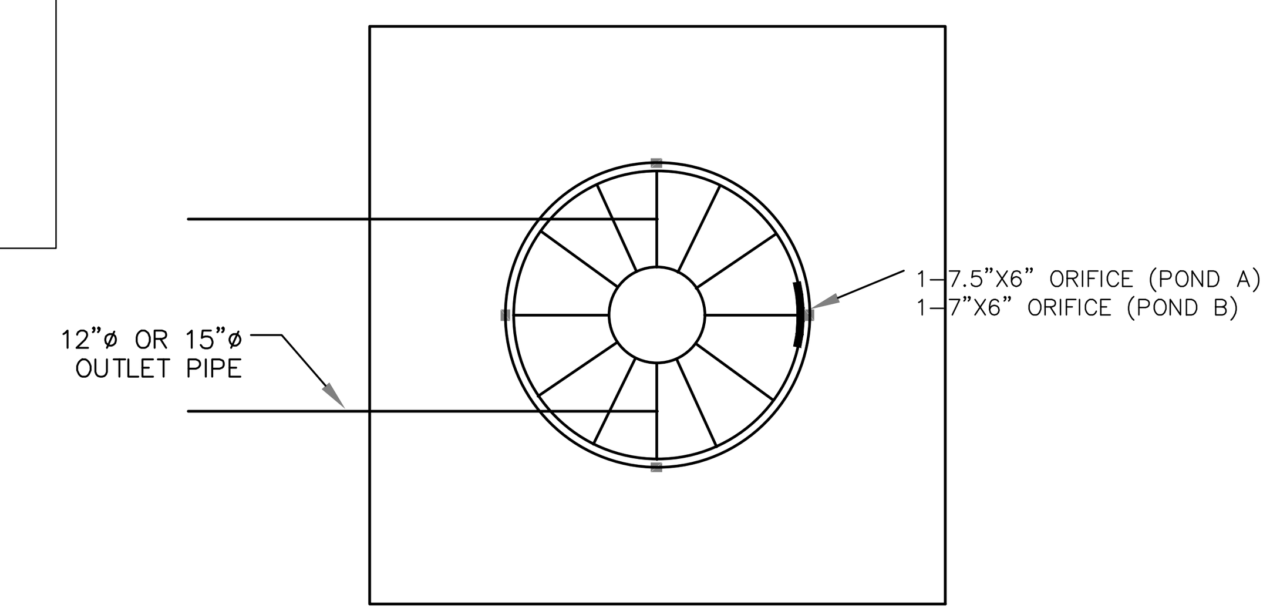
DETENTION POND A, SECTION A-A
NOT TO SCALE



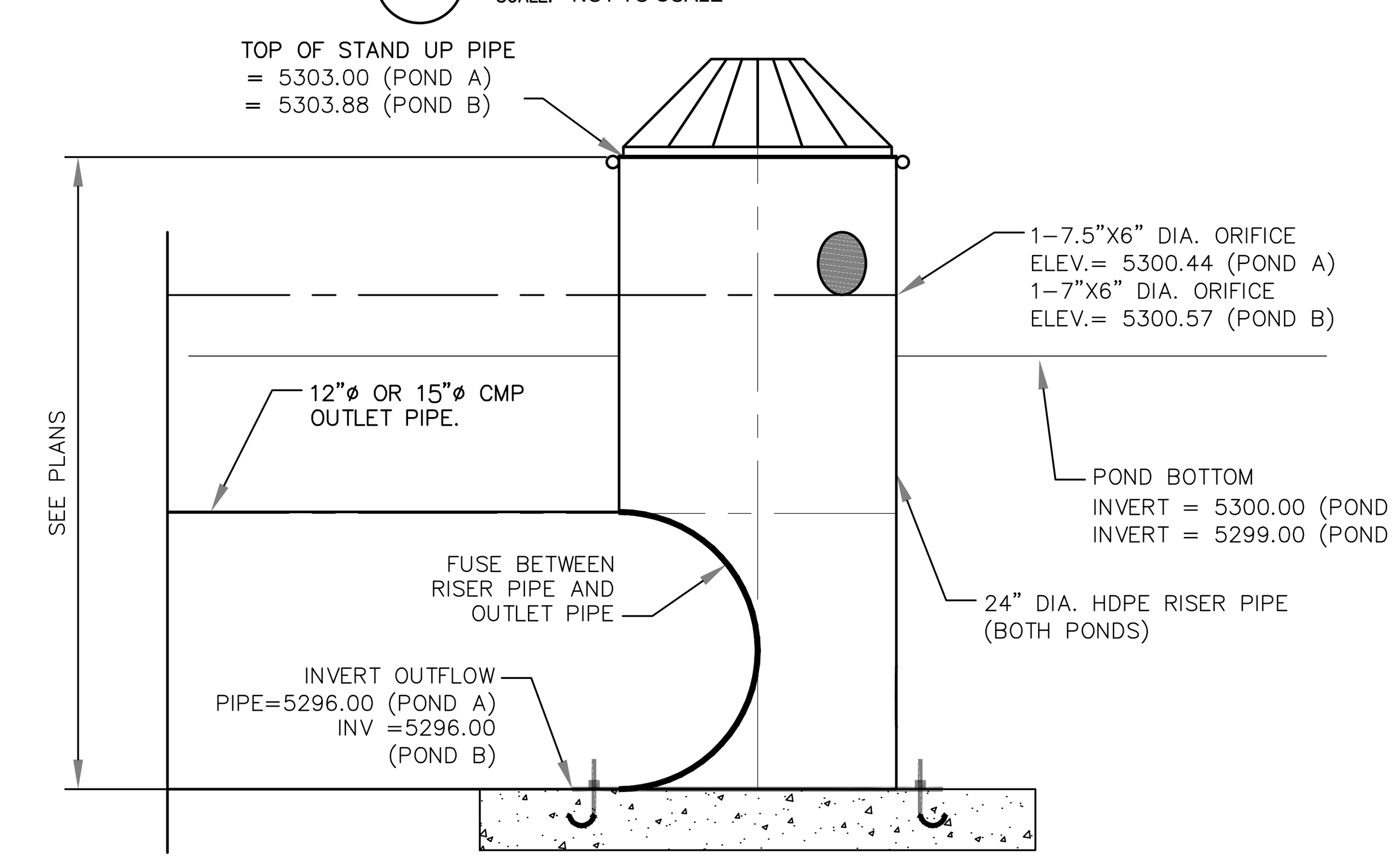
DETENTION POND A, SECTION B-B
NOT TO SCALE



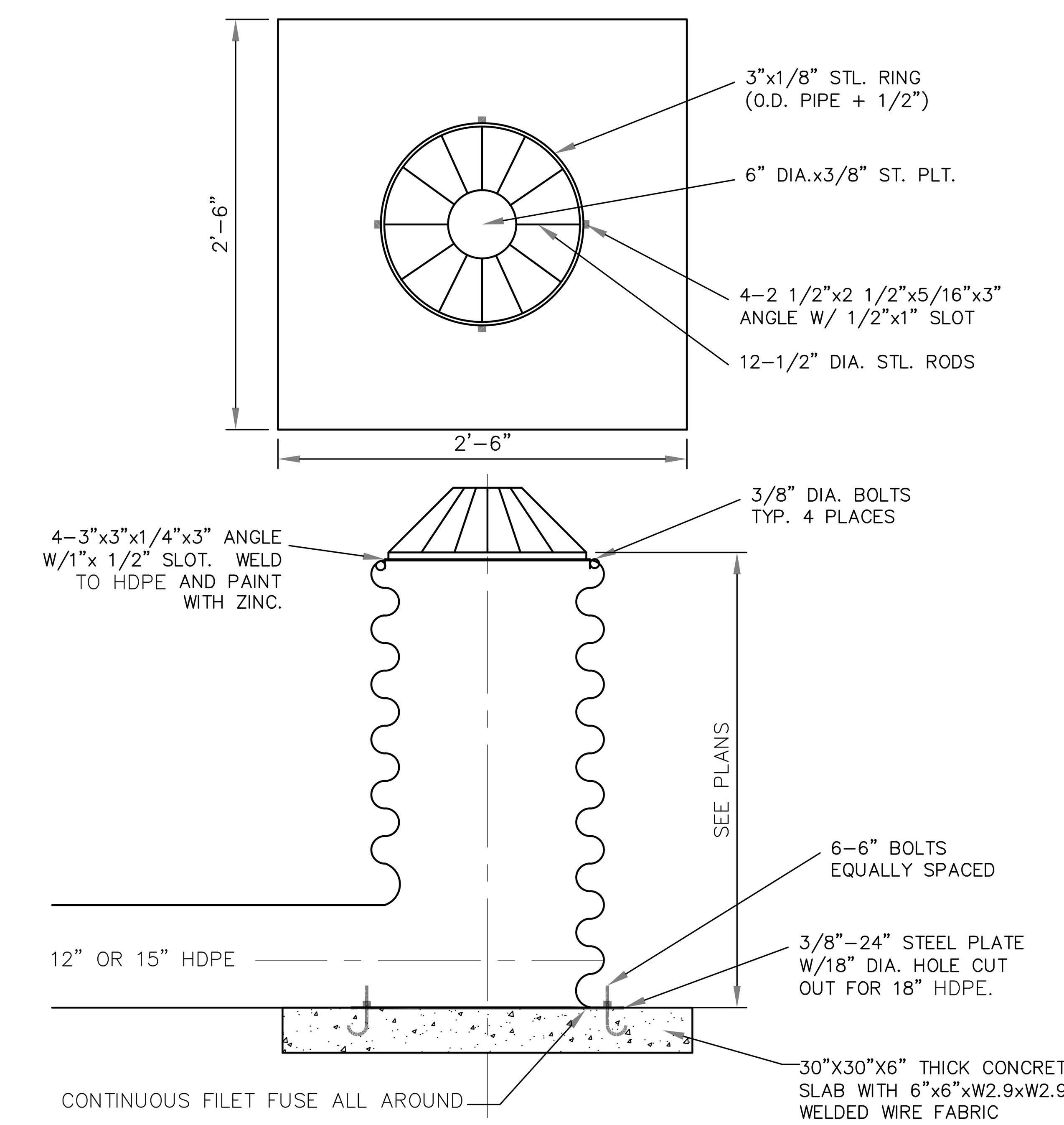
DETENTION POND B, SECTION A-A
NOT TO SCALE



A4 PLAN VIEW BOTTOM ROW OF 6" DIA. ORIFICES
SCALE: NOT TO SCALE



A4 OUTLET COVER DETAIL
SCALE: NOT TO SCALE



A4 OUTLET COVER COMPONENTS AND BUILD NOTES
SCALE: NOT TO SCALE

Pond A - Elevation-Storage Relationship

Elevation	Depth ft	Area sf	Storage cf	Total Storage cf	Total Storage ac-ft
5299.00	0.00	0.0	0.00	0.00	0.0000
5300.00	1.00	1,508.0	754.00	754.00	0.0173
5301.00	2.00	6,763.0	4,135.50	4,889.50	0.1122
5301.25	2.25	7,040.0	1,725.38	6,614.88	0.1519
5301.50	2.50	7,316.0	1,794.50	8,409.38	0.1931
5301.75	2.75	7,593.0	1,863.63	10,273.00	0.2358
5302.00	3.00	7,869.0	1,932.75	12,205.75	0.2802
5302.25	3.25	8,160.0	2,003.63	14,209.38	0.3262
5302.50	3.50	8,451.0	2,076.38	16,285.75	0.3739
5302.75	3.75	8,741.0	2,149.00	18,434.75	0.4232
5303.00	4.00	9,032.0	2,221.63	20,656.38	0.4742
5303.25	4.25	9,337.0	2,296.13	22,952.50	0.5269
5303.50	4.50	9,641.0	2,372.25	25,324.75	0.5814
5303.75	4.75	9,946.0	2,448.38	27,773.13	0.6376
5304.00	5.00	10,250.0	2,524.50	30,297.63	0.6955

Pond B - Elevation-Storage Relationship

Elevation	Depth ft	Area sf	Storage cf	Total Storage cf	Total Storage ac-ft
5299.00	0.00	407.5	0.00	0.00	0.0000
5300.00	1.00	937.8	672.65	672.65	0.0154
5301.00	2.00	1,650.9	1,294.35	1,967.00	0.0452
5301.25	2.25	1,865.4	439.54	2,406.54	0.0552
5301.50	2.50	2,094.4	494.98	2,901.51	0.0666
5301.75	2.75	2,387.6	560.25	3,461.76	0.0795
5302.00	3.00	2,682.6	633.78	4,095.54	0.0940
5302.25	3.25	2,981.4	708.00	4,803.54	0.1103
5302.50	3.50	3,284.1	783.19	5,586.73	0.1283
5302.75	3.75	3,590.2	859.29	6,446.01	0.1480
5303.00	4.00	3,900.0	936.28	7,382.29	0.1695
5303.25	4.25	4,213.2	1,014.15	8,396.44	0.1928
5303.50	4.50	4530	1,092.90	9,489.34	0.2178
5303.75	4.75	4850.3	1,172.54	10,661.88	0.2448
5304.00	5.00	5174.2	1,253.06	11,914.94	0.2735

City of Albuquerque
Planning Department
Development Review Services
HYDROLOGY SECTION
APPROVED
DATE: 09/27/22
BY: Renée C. Brissette
HydroTrans # P15D004

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BENCH MARKS

SEAL

NO.	DATE	DESCRIPTION	BY
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DRAWN BY: JJB
CHECKED BY: DOC
DATE 08/2022

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT
ENGINEERING DIVISION

DETENTION POND DETAILS (2 OF 2)

DESIGN REVIEW COMMITTEE | CITY ENGINEER APPROVAL

ZONE MAP NO. NR-SU
CITY PROJECT NO. 000000
SHEET NO. C-701

Existing Basin

			Treatment A		Treatment B		Treatment C		Treatment D		100-year			10-year		
Basin	Area (sf)	Area (acres)	(%)	(acres)	(%)	(acres)	(%)	(acres)	(%)	(acres)	Weighted E (in)	Volume (ac-ft)	Flow (cfs)	Weighted E (in)	Volume (ac-ft)	Flow (cfs)
A	217,944	5.00	0.0%	0.00	0.0%	0.00	100.0%	5.00	0.0%	0.00	2.030	0.85	15.26	0.946	0.39	7.96

Proposed Basins

			Treatment A		Treatment B		Treatment C		Treatment D		100-year			10-year		
Basin	Area (sf)	Area (acres)	(%)	(acres)	(%)	(acres)	(%)	(acres)	(%)	(acres)	Weighted E (in)	Volume (ac-ft)	Flow (cfs)	Weighted E (in)	Volume (ac-ft)	Flow (cfs)
A	110,580	2.54	0.0%	0.00	0.0%	0.00	32.3%	0.82	67.8%	1.72	1.911	0.40	9.97	1.178	0.25	5.97
B	47,634	1.09	0.0%	0.00	0.0%	0.00	0.0%	0.00	100.0%	1.09	2.330	0.21	4.75	1.510	0.14	2.96
OFS	59,730	1.37	0.0%	0.00	0.0%	0.00	100.0%	1.37	0.0%	0.00	1.030	0.12	4.18	0.480	0.05	2.18
	Total =	5.00									Total =	0.73	18.89	Total =	0.44	11.11

Equations

Weighted E = Ea*Aa + Eb*Ab + Ec*Ac + Ed*Ad / (Total Area)

Volume = Weighted E * Total Area

Flow = Qa*Aa + Qb*Ab + Qc*Ac + Qd*Ad

Excess Precipitation, E (in)		
Zone 2	100-year	10-year
Ea	0.62	0.15
Eb	0.80	0.30
Ec	1.03	0.48
Ed	2.33	1.51

Peak Discharge, Q (cfs/acre)		
Zone 2	100-year	10-year
Qa	1.71	0.41
Qb	2.36	0.95
Qc	3.05	1.59
Qd	4.34	2.71

Stormwater Quality

Basin	Impervious Area (sf)	SWQV (in)	Stormwater Quality Volume (cf)	Stormwater Quality Volume (ac-ft)	
A1	30,789	0.42	1,078	0.025	
A2	17,714	0.42	620	0.014	
A3	24,565	0.42	860	0.020	
A4	0	0.42	0	0.000	
Total =	**73,067**		**2,557**	**0.059**	**0.060 Provided**
B1	**38,515**	**0.42**	**1,348**	**0.031**	**0.031 Provided**
OS1	0	0.42	0	0.000	
OS2	0	0.42	0	0.000	
OS3	0	0.42	0	0.000	
OS4	1,840	0.42	64	0.001	
Total =	**1,840**		**64**	**0.001**	

12" Full Flow @ 0.50%

Project Description	
Friction Method	Manning Formula
Solve For	Full Flow Capacity
Input Data	
Roughness Coefficient	0.010
Channel Slope	0.005 ft/ft
Normal Depth	12.0 in
Diameter	12.0 in
Discharge	3.27 cfs
Results	
Discharge	3.27 cfs
Normal Depth	12.0 in
Flow Area	0.8 ft²
Wetted Perimeter	37.7 in
Hydraulic Radius	3.0 in
Top Width	0.0 in
Critical Depth	9.3 in
Percent Full	100.0 %
Critical Slope	0.006 ft/ft
Velocity	4.17 ft/s
Velocity Head	3.24 in
Specific Energy	1.27 ft
Froude Number	(N/A)
Maximum Discharge	3.52 cfs
Discharge Full	3.27 cfs
Slope Full	0.005 ft/ft
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 in
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	100.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	12.0 in
Critical Depth	9.3 in
Channel Slope	0.005 ft/ft
Critical Slope	0.006 ft/ft

15" Full Flow @ 0.50%

Project Description	
Friction Method	Manning Formula
Solve For	Full Flow Capacity
Input Data	
Roughness Coefficient	0.010
Channel Slope	0.005 ft/ft
Normal Depth	15.0 in
Diameter	15.0 in
Discharge	5.94 cfs
Results	
Discharge	5.94 cfs
Normal Depth	15.0 in
Flow Area	1.2 ft²
Wetted Perimeter	47.1 in
Hydraulic Radius	3.8 in
Top Width	0.0 in
Critical Depth	11.8 in
Percent Full	100.0 %
Critical Slope	0.005 ft/ft
Velocity	4.84 ft/s
Velocity Head	4.37 in
Specific Energy	1.61 ft
Froude Number	(N/A)
Maximum Discharge	6.39 cfs
Discharge Full	5.94 cfs
Slope Full	0.005 ft/ft
Flow Type	Supercritical
GVF Input Data	
Downstream Depth	0.0 in
Length	0.0 in
Number Of Steps	0
GVF Output Data	
Upstream Depth	0.0 in
Profile Description	N/A
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.0 %
Normal Depth Over Rise	100.0 %
Downstream Velocity	Infinity ft/s
Upstream Velocity	Infinity ft/s
Normal Depth	15.0 in
Critical Depth	11.8 in
Channel Slope	0.005 ft/ft
Critical Slope	0.005 ft/ft

Inlet A2

Project Description	
Solve For	Spread
Input Data	
Discharge	2.42 cfs
Gutter Width	0.0 in
Gutter Cross Slope	0.020 ft/ft
Road Cross Slope	0.020 ft/ft
Grate Width	25.0 in
Grate Length	3.3 ft
Local Depression	0.0 in
Local Depression Width	0.0 in
Grate Type	P-50 mm (P-1 -7/8")
Clogging	41.0 %
Results	
Spread	15.1 ft
Depth	3.6 in
Gutter Depression	0.0 in
Total Depression	0.0 in
Open Grate Area	3.7 ft²
Active Grate Weir Length	5.8 ft

Pond A Orifice

Project Description	
Solve For	Discharge
Input Data	
Headwater Elevation	60.00 in
Centroid Elevation	3.00 in
Tailwater Elevation	0.00 in
Discharge Coefficient	0.610
Opening Width	7.5 in
Opening Height	6.0 in
Results	
Discharge	3.33 cfs
Headwater Height Above Centroid	57.00 in
Tailwater Height Above Centroid	-3.00 in
Flow Area	0.3 ft²
Velocity	10.66 ft/s

Pond B Orifice

Project Description	
Solve For	Discharge
Input Data	
Headwater Elevation	48.00 in
Centroid Elevation	3.00 in
Tailwater Elevation	0.00 in
Discharge Coefficient	0.610
Opening Width	7.0 in
Opening Height	6.0 in
Results	
Discharge	2.76 cfs
Headwater Height Above Centroid	45.00 in
Tailwater Height Above Centroid	-3.00 in
Flow Area	0.3 ft²
Velocity	9.48 ft/s

Inlet A3

Project Description	
Solve For	Spread
Input Data	
Discharge	3.35 cfs
Gutter Width	0.0 in
Gutter Cross Slope	0.020 ft/ft
Road Cross Slope	0.020 ft/ft
Grate Width	25.0 in
Grate Length	3.3 ft
Local Depression	0.0 in
Local Depression Width	0.0 in
Grate Type	P-50 mm (P-1 -7/8")
Clogging	41.0 %
Results	
Spread	18.3 ft
Depth	4.4 in
Gutter Depression	0.0 in
Total Depression	0.0 in
Open Grate Area	3.7 ft²
Active Grate Weir Length	5.8 ft

Inlet B1

Project Description	
Solve For	Spread
Input Data	
Discharge	4.75 cfs
Gutter Width	0.0 in
Gutter Cross Slope	0.020 ft/ft
Road Cross Slope	0.020 ft/ft
Grate Width	25.0 in
Grate Length	3.3 ft
Local Depression	0.0 in
Local Depression Width	0.0 in
Grate Type	P-50 mm (P-1 -7/8")
Clogging	41.0 %
Results	
Spread	22.7 ft
Depth	5.4 in
Gutter Depression	0.0 in
Total Depression	0.0 in
Open Grate Area	3.7 ft²
Active Grate Weir Length	5.8 ft

City of Albuquerque
Planning Department
Development Review Services
HYDROLOGY SECTION
APPROVED
DATE: 09/27/22
BY: Renée C. Brissette
HydroTrans # P15D004

THE APPROVAL OF THESE PLANS/REPORT SHALL NOT BE CONSTRUED TO PERMIT VIOLATIONS OF ANY CITY ORDINANCE OR STATE LAW, AND SHALL NOT PREVENT THE CITY OF ALBUQUERQUE FROM REQUIRING CORRECTION, OR ERROR OR DIMENSIONS IN PLANS, SPECIFICATIONS, OR CONSTRUCTIONS. SUCH APPROVED PLANS SHALL NOT BE CHANGED, MODIFIED OR ALTERED WITHOUT AUTHORIZATION.

811

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DESIGNED BY:	JJB
DRAWN BY:	JJB
CHECKED BY:	DOC
DATE	08/2022

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT
ENGINEERING DIVISION

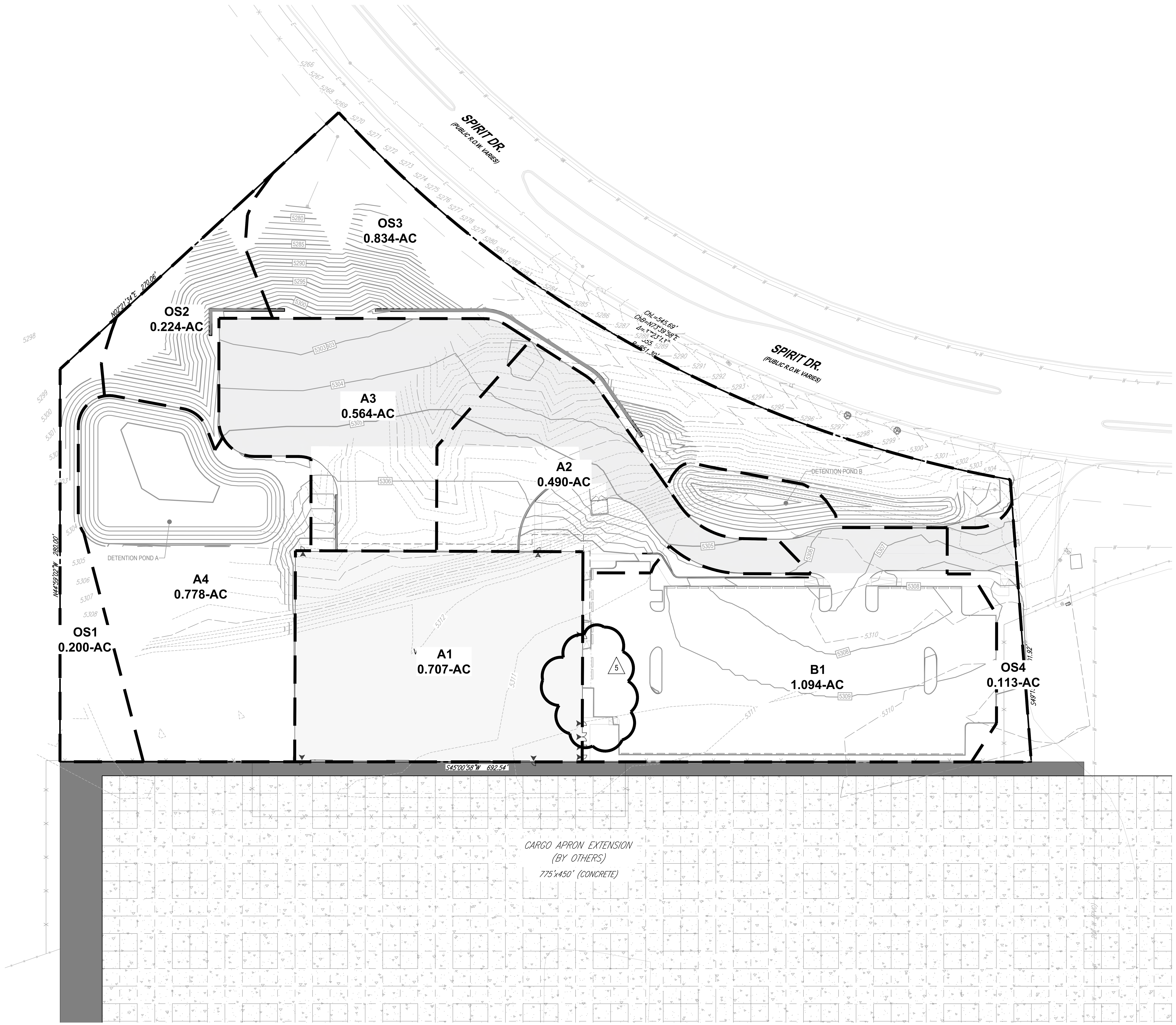
DETENTION POND DETAILS (1 OF 2)

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL

ZONE MAP NO. NR-SU

CITY PROJECT NO. 000000

SHEET NO. C-700



VICINITY MAP

SCALE: 1" : 1000'

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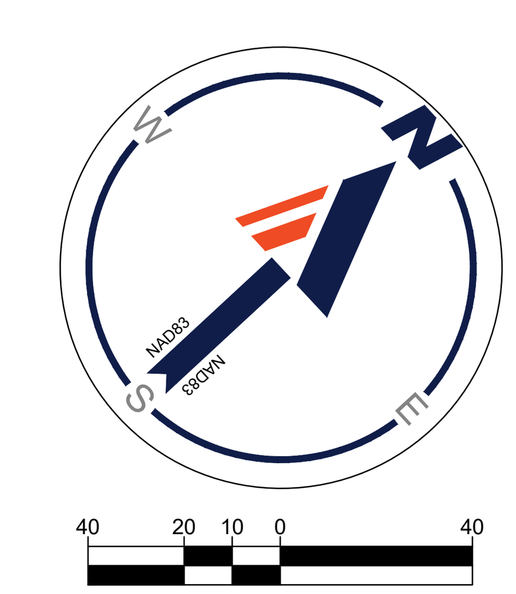
HydroTrans # P15D004

THE APPROVAL OF THESE PLANS/REPORT SHALL NOT BE CONSTRUED TO PERMIT VIOLATIONS OF ANY CITY ORDINANCE OR STATE LAW, AND SHALL NOT PREVENT THE CITY OF ALBUQUERQUE FROM REQUIRING CORRECTION, OR ERROR OR DIMENSIONS IN PLANS, SPECIFICATIONS, OR CONSTRUCTIONS. SUCH APPROVED PLANS SHALL NOT BE CHANGED, MODIFIED OR ALTERED WITHOUT AUTHORIZATION.

811
CALL NM ONE-CALL SYSTEM SEVEN (7) DAYS PRIOR TO ANY EXCAVATION



1"= 40'

CONSULTANTS

BOHLER

SITE CIVIL AND CONSULTING ENGINEERING
LAND SURVEYING
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
PERMITTING SERVICES
TRANSPORTATION SERVICES

KABQ CARGO FACILITY

3730 SPIRIT DR. SE
Albuquerque, NM 87106

BENCH MARKS

BM#1
TOP OF SANITARY SEWER MANHOLE
ELEVATION = 5284.30'

BM#2
NO. 4 REBAR W/ CAP IN RAW LAND
NORTHING: 465944.03'
EASTING: 386672.45'
ELEVATION: 5298.69'

BM #3
NO. 4 REBAR W/ CAP IN RAW LAND
NORTHING: 466213.90'
EASTING: 386683.57'
ELEVATION: 5270.95'

BM #4
NO. 4 REBAR W/CAP IN RAW LAND
NORTHING: 466367.43'
EASTING: 387207.10'
ELEVATION: 5304.16'

SEAL

DEAN O. CARDWELL
NEW MEXICO
24039
PROFESSIONAL ENGINEER

NO.	DATE	DESCRIPTION	BY
8	07/11/22	WHEEL STOP ADDITION & RAMP DETAILS	
9	07/15/22	SIDEWALK REMOVAL	
10	07/18/22	FORKLIFT RAMP PAVEMENT	
11	08/01/22	DUMPSTER PATH SIDEWALK GRADING	

AS-BUILT INFORMATION
CONTRACTOR:
WORK STAKED BY: DATE:
INSPECTOR'S ACCEPTANCE BY: DATE:
FIELD VERIFICATION BY: DATE:
DRAWINGS CORRECTED BY: DATE:

DESIGNED BY: JJB
DRAWN BY: JJB
CHECKED BY: DOC
DATE 08/2022

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT
ENGINEERING DIVISION

DRAINAGE AREA MAP

DESIGN REVIEW COMMITTEE | CITY ENGINEER APPROVAL

ZONE MAP NO. NR-SU
CITY PROJECT NO. 000000
SHEET NO. C-800