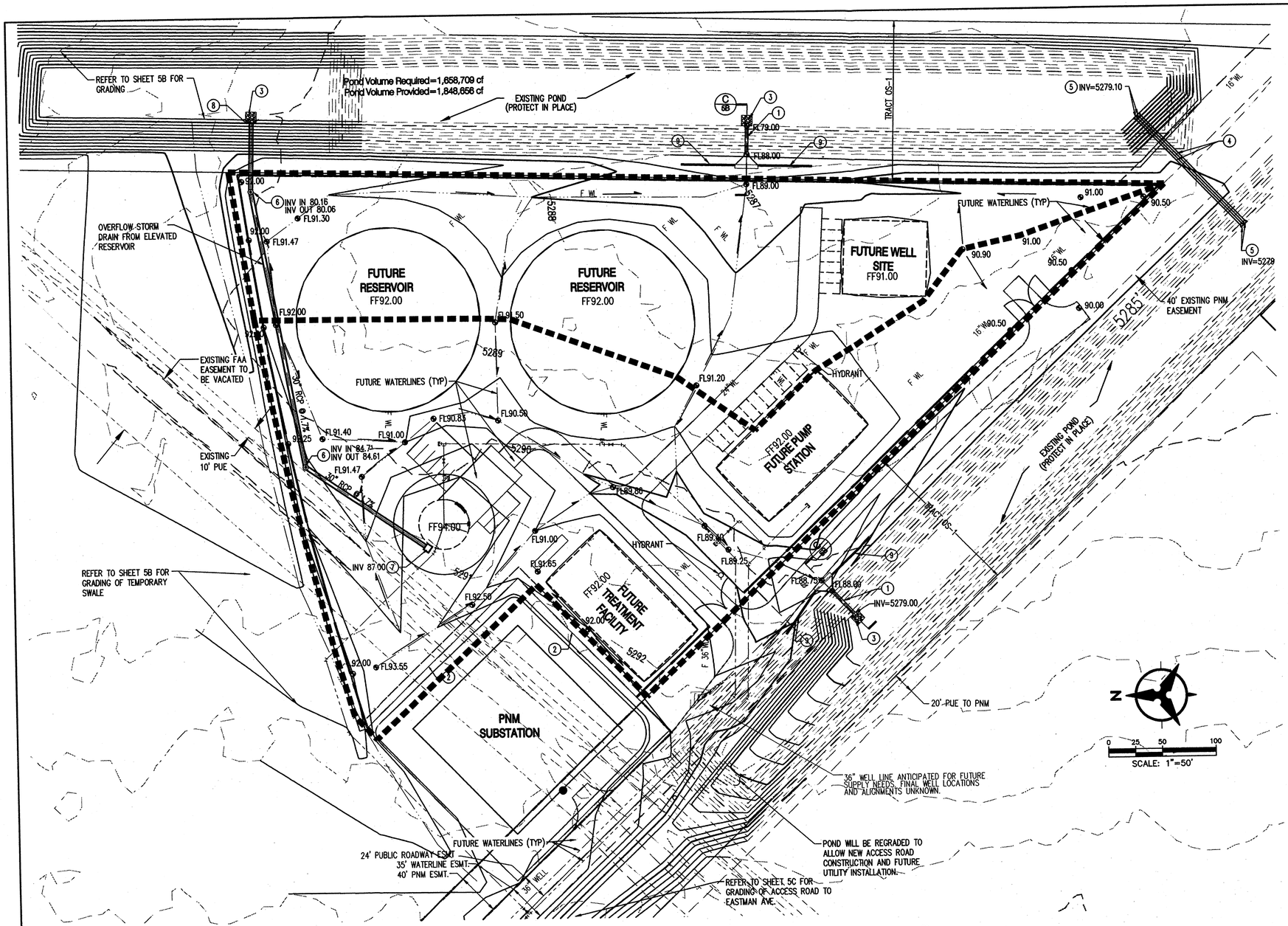

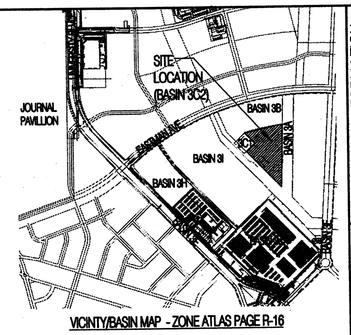

VICINITY/BASIN MAP - ZONE ATLAS PAGE R-16

Introduction
This drainage management plan is in support of the Water Utility Site at Mesa del Sol. With this submittal we are requesting COA hydrology approval for DRB Site Plan Administrative Amendment Approval and Building Permit Approval.

This drainage management plan follows the concepts and guidelines set forth in the 'Drainage Area 3 Drainage Management Plan (COA File R16/DA3),'which outlines the drainage scheme and sizes the pond for this basin. In this drainage management plan, this site is referenced as Basin C3Z.

Existing Conditions
The elevated reservoir site ("The Site") is Tract 20 of the Bulk Land Plat for Mesa del Sol Innovation Park. This 6.24 acre lot is currently undeveloped and slopes 0.5% to 1.0% from the west to east. It is located in between the two Regional Retention Ponds ('Ponds') constructed with the Albuquerque Studios Site (COA Hydro File #R16/D002A).

In addition, there is a PNM substation that was constructed to the northwest of The Site. The majority of this site is self contained and will not adversely affect the elevated reservoir site (See COA Hydro File #R16/D002B).

Once The Site is completed, it will be bound on three sides. The Ponds to the east and southwest and a future developed parcel to the north.

Offsite Drainage
Current drainage from the undeveloped land to the west of the site drains into the existing pond constructed with the Albuquerque Studios site via storm drain and surface flow. A temporary swale west of the access road will direct flows to the existing pond. All drainage to the east of these adjacent tracts continues to outfall to the existing playa system to the east and will not affect the site. Drainage from the north will be diverted east into the existing ponds via a temporary swale. Upon development of the future parcels, drainage will be conveyed to the existing ponds in a manner suitable to each specific site plan, and each site will be subject to future submittal and approval.

Proposed Site Grading
The slope of the site under proposed conditions will be between 0.5% to 1.0%. A portion of the site will drain to the eastern pond (Basin 1) while the remainder of the site will drain to the southwestern pond (Basin 2). This site will not be paved but seeded resulting in land treatments to be 50% D, 25% C and 25% B (See Table 1 for basin calculations).

Basin 1 and Basin 2 will drain to their respected ponds via concrete rundowns. The rundowns will have a 20' wide opening and neck down to a 4' wide channel heading down the 3:1 side slopes of the pond. Per the weir equation provided from the DPM chapter 22.3, the allowable flow of the 20' wide opening at 6" of depth is approximately 19cfs. In addition the 4' wide 6" tall rundown headed down the 3:1 slope has an allowable discharge of 32.17cfs. This far exceeds the required Q for each basin.

The ponds have previously been constructed to account for developed flows from this site with the Albuquerque Studios submittal. Currently there are only a few basins contributing to the existing Ponds. Under current conditions for these basins (including the developed flows from The Site), the maximum water surface elevation (MWSEL) is approximately 5284.60.

(Note: the ponds were sized to accept the 100 year, 10 day storm generated by the fully developed drainage area in accordance with the methodology outlined in the DPM section 22.2. Developed land treatments for Mesa del Sol sites are assumed to be 90% treatment D and 10% treatment B. Currently the top of the ponds extend to 5289.00).

A portion of the existing western pond constructed with the Albuquerque Studios site will be filled in order to allow room for an access road and future utilities to serve both the Elevated Reservoir site and the Mesa del Sol development. The pond to the east will be extended to the north to account for this volume. (Total pond volume provided after pond adjustments = 42.4 acre-ft, Total volume required for current contributing basins to the existing ponds = 18.9 acre-ft).

Floodplain
In accordance with FEMA Community Map Panel #35001C0555E, the site is not located within a floodplain.

Conclusion
This drainage submittal has been prepared in accordance with City of Albuquerque requirements. This plan demonstrates the proposed grading and drainage design. The implementation of this design would result in the safe passage and retention of the 100 yr, 10 day storm event. We have previously received hydrology approval for DRB site plan approval and rough grading and foundation permit approval. With this submittal we are requesting COA Hydrology Department approval for DRB Administrative Amendment approval and building permit approval.

GENERAL NOTES

1. CONTRACTOR MUST OBTAIN A TOPSOIL DISTURBANCE PERMIT FROM THE ENVIRONMENTAL HEALTH DIVISION PRIOR TO CONSTRUCTION.
2. THE CONTRACTOR IS TO REFER TO EARTHWORK SPECIFICATION AS NOTED IN THE SOILS REPORT BY GEO-TEST, INC. DATED 1/07 (JOB NO. 1-61202).
3. THE CONTRACTOR SHALL CONFORM TO ALL CITY, COUNTY, STATE, AND FEDERAL DUST CONTROL MEASURES & REQUIREMENTS AND WILL BE RESPONSIBLE FOR PREPARING AND OBTAINING ALL NECESSARY APPLICATIONS AND APPROVALS.
4. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE LOTS INTO PUBLIC RIGHT-OF-WAY. THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AND WETTING THE SOIL TO KEEP IT FROM BLOWING.
5. BOULDERS GREATER THAN 3 FEET IN DIAMETER EXCAVATED DURING GRADING ACTIVITIES SHALL BE STOCKPILED AND DISPOSED OF AT THE DISCRETION OF THE OWNER.
6. ALL WALLS SHOWN ARE TO BE PLACED ALONG PROPERTY LINE.

TABLE 1
ELEVATED RESERVOIR - DEVELOPED HYDRAULIC CALCULATIONS
Basin Data Table

This table is based on the DPM Section 22.2, Zone: 2

SUB-BASIN ID	Area (SQ. FT)	Area (AC.)	Land Treatment Percentages A	B	C	D	Q(100) (cfs/ac.)	Q(100) (cfs)	WTE (inches)	$V(100)_{360}$ (CF)	$V(100)_{10day}$ (CF)
Basin 1	110391	2.53	0.0%	25.0%	25.0%	50.0%	4.29	10.87	*1.96*	*17984*	*25344*
Basin 2	162941	3.74	0.0%	25.0%	25.0%	50.0%	3.71	13.86	*1.54*	*20677*	*31740*
Total	*273331.68*	*6.27*								*38661.29*	*57083.40*

KEYED NOTES

1. INSTALL CONCRETE WEIR AND RUNDOWN PER DETAIL A & B, SHEET 5B. TRANSITION FROM WIER SECTION TO RUNDOWN SECTION OVER 10'.
2. INSTALL TURN BLOCKS FOR DRAINAGE EVERY 20 FT,O.C.
3. INSTALL 10'X10' RIP RAP BLANKET, 12" THICK.
4. FUTURE 2-36" RCP STORM DRAIN PIPES (TO BE CONSTRUCTED AT A LATER DATE.
5. INSTALL 36" RCP END SECTION.
6. INSTALL TYPE E MANHOLE PER COA STANDARD DRAWING 2101.
7. TIE TO EXISTING STUB
8. INSTALL 30" RCP END SECTION.
9. PROVIDE 1' HIGH BERM, 2FT WIDE TOP, WITH 3:1 SIDE SLOPES. EXTEND 50' BEYOND CONRETE RUNDOWN.

LEGEND

- 91.62 — PROPOSED SPOT ELEVATIONS
- 92.48 — EXISTING SPOT ELEVATIONS
- 5470 — EXISTING CONTOUR W/ INDEX ELEVATION
- FLOW ARROW
- W — PROPOSED TANK WATER LINE
- DRAINAGE BASIN BOUNDARIES
- PROPOSED WALL
- PROPOSED SLOPE

BHI JOB NO. 070204

SURVEY INFORMATION
FIELD NOTES

NO.	BY	DATE

BENCH MARKS
ACS 3-1/4" ALUMINUM CAP RECTED TO A TUBE SET IN A CONCRETE BASE IN THE GROUND STAMPED "5-C-14, 1987", FROM THE RIO BRAVO BLVD. AND BROADWAY INTERSECTION GO SOUTH 0.9 MILES AND PROCEED 123' WEST OF THE CENTERLINE.
STATE PLANE COORDINATES (CENTRAL ZONE, NAD83/NAVD88) N=1460471.432, E=1521388.180 (GROUND) ELEV.=4981.17

AS-BUILT INFORMATION

CONTRACTOR WORK STAKED BY	DATE
ACCEPTANCE BY	DATE
FIELD VERIFICATION BY	DATE
DRAWINGS CORRECTED BY	DATE

MICRO-FILM INFORMATION

RECORDED BY	DATE
NO.	

ENGINEER'S SEAL
JEFFREY L. MUHR, NEW MEXICO, 16858, REGISTERED PROFESSIONAL ENGINEER, 12-19-07

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	DATE 01/2007
		DESIGNED BY	CBP
		DRAWN BY	MTD
		CHECKED BY	DJG

Bohannan ▲ Huston
Courtyard I 7500 Jefferson St. NE Albuquerque, NM 87109-4335
ENGINEERING ▲ SPATIAL DATA ▲ ADVANCED TECHNOLOGIES

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

MESA DEL SOL
ELEVATED WATER RESERVOIR
SITE GRADING, DRAINAGE, AND UTILITY PLAN

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR.	MO./DAY/YR.

CITY PROJECT NO. .
ZONE MAP NO. R-16-Z
SHEET 5A OF 3 5

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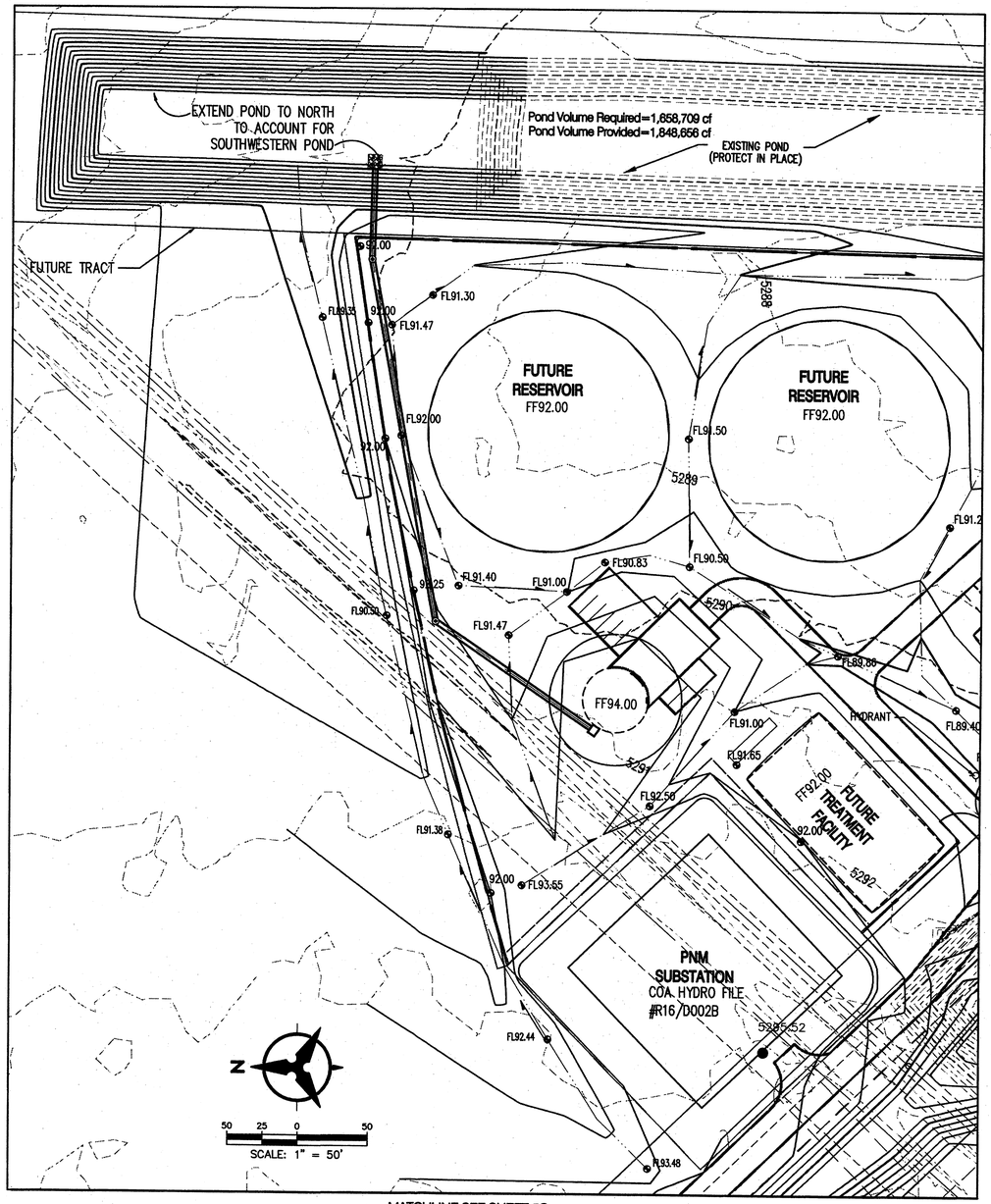
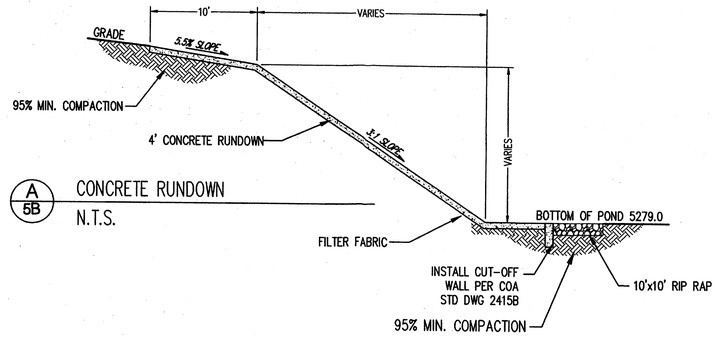


MATCHLINE SEE SHEET 5C

LEGEND

- PROPERTY LINE
- 5289 EXISTING CONTOUR
- 90 PROPOSED INDEX CONTOUR
- 91 PROPOSED INTERMEDIATE CONTOUR
- 92.50 PROPOSED SPOT ELEVATION
- PROPOSED SWALE FLOWLINE



A/5B CONCRETE RUNDOWN
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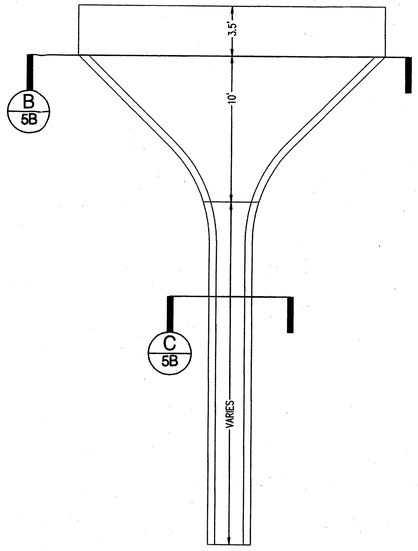
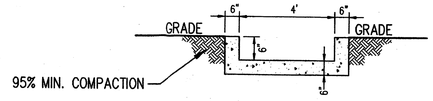


B/5B

C/5B



C/5B CONCRETE RUNDOWN TYPICAL SECTION
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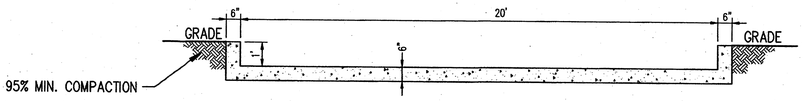
5B PLAN VIEW OF CONCRETE WIER AND RUNDOWN
N.T.S.



B/5B CONCRETE RUNDOWN WEIR SECTION
N.T.S.

BHI JOB NO. 070204

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ENGINEER'S SEAL
JEFFREY L. MULLENIX
NEW MEXICO
16858
REGISTERED PROFESSIONAL ENGINEER
12-19-07

SURVEY INFORMATION
FIELD NOTES

NO.	BY	DATE

BENCH MARKS
ACS 3-1/4" ALUMINUM CAP RIVETED TO A TUBE SET IN A CONCRETE BASE IN THE GROUND STAMPED "5-0-14, 1987", FROM THE RIO BRAVO BLVD. AND BROADWAY INTERSECTION GO SOUTH 0.9 MILES AND PROCEED 123' WEST OF THE CENTERLINE.
STATE PLANE COORDINATES (CENTRAL ZONE, NAD83/NAVD88) N=1460471.432, E=1521388.180 (GROUND) ELEV.=4981.17

AS-BUILT INFORMATION

CONTRACTOR		DATE
WORK STAKED BY		DATE
ACCEPTANCE BY		DATE
FIELD VERIFICATION BY		DATE
DRAWINGS CORRECTED BY		DATE
MICRO-FILM INFORMATION		
RECORDED BY		DATE
NO.		DATE

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	DESIGNED BY
			DRAWN BY
			CHECKED BY

Bohannan ▲ Huston Inc.
Courtyard I 7500 Jefferson St. NE Albuquerque, NM 87109-4335
ENGINEERING ▲ SPATIAL DATA ▲ ADVANCED TECHNOLOGIES

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

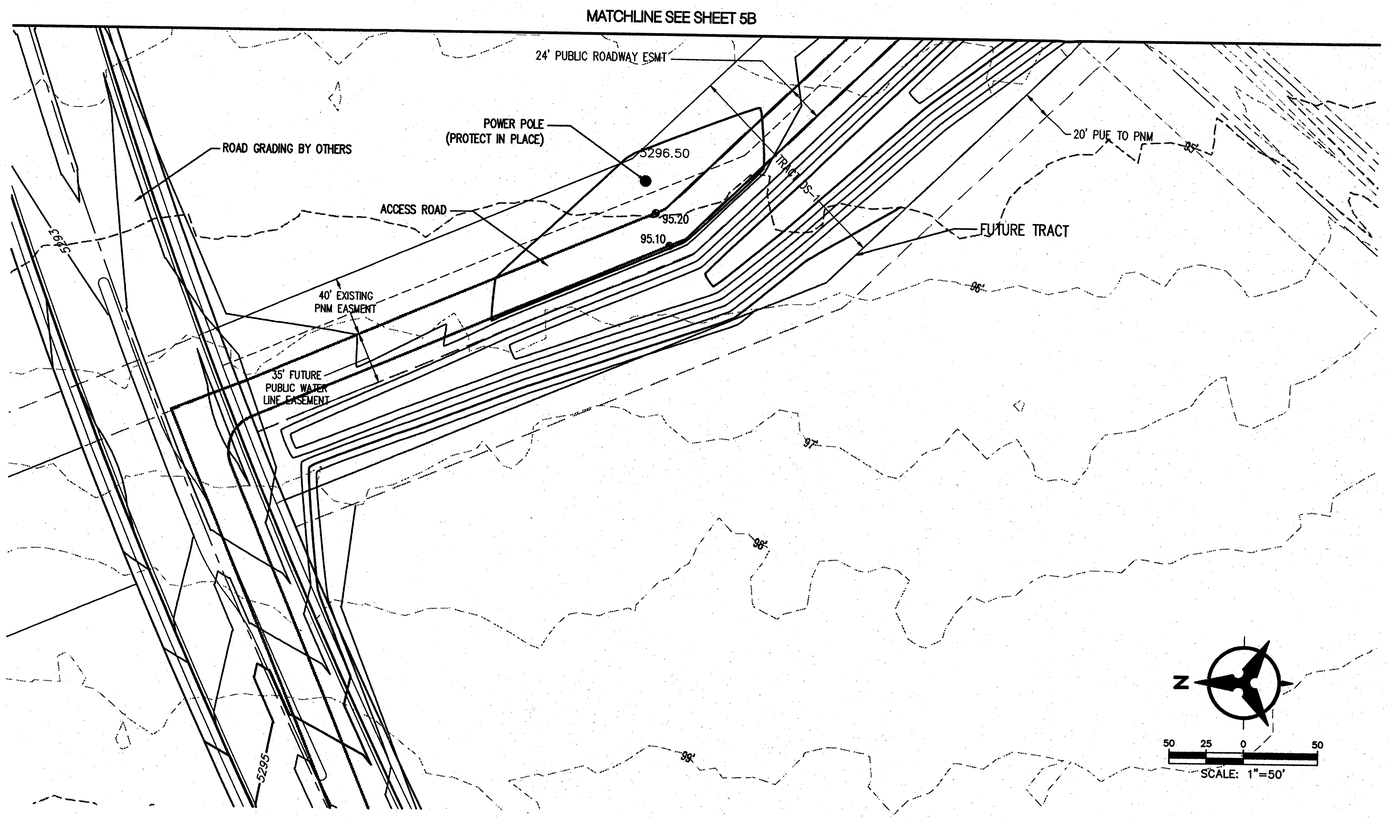
MESA DEL SOL EVEVATED RESERVOIR
CONCEPTUAL OFFSITE GRADING & DRAINAGE PLAN

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR.	MO./DAY/YR.

CITY PROJECT NO.

ZONE MAP NO. R-16-Z

SHEET 5B 5 OF 3



LEGEND

- PROPERTY LINE
- 5289 EXISTING CONTOUR
- 90 PROPOSED INDEX CONTOUR
- 91 PROPOSED INTERMEDIATE CONTOUR
- 92.50 PROPOSED SPOT ELEVATION
- PROPOSED SWALE FLOWLINE

Bohannan ▲ Huston

Courtyard I 7500 Jefferson St. NE Albuquerque, NM 87109-4335

ENGINEERING ▲ SPATIAL DATA ▲ ADVANCED TECHNOLOGIES

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

MESA DEL SOL EVEVATED RESERVOIR
CONCEPTUAL OFFSITE GRADING & DRAINAGE PLAN

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR.	MO./DAY/YR.

CITY PROJECT NO.

ZONE MAP NO. R-16-Z

SHEET 5C OF 5

BHI JOB NO. 070204

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ENGINEER'S SEAL

JEFFREY L. MULBERRY
NEW MEXICO
16858
REGISTERED PROFESSIONAL ENGINEER
12-12-07

NO.	DATE	BY	REMARKS
			REVISIONS
			DESIGN
			DESIGNED BY
			DRAWN BY
			CHECKED BY

AS-BUILT INFORMATION

CONTRACTOR STAKED BY	DATE
INSPECTOR'S ACCEPTANCE BY	DATE
FIELD VERIFICATION BY	DATE
AS-BUILTS CORRECTED BY	DATE

BENCH MARKS

ACS 3-1/4" ALUMINUM CAP REVETED TO A TUBE SET IN A CONCRETE BASE IN THE GROUND STAMPED "5-Q-14, 1987". FROM THE RIO BRAVO BLVD. AND BROADWAY INTERSECTION GO SOUTH 0.9 MILES AND PROCEED 123' WEST OF THE CENTERLINE.

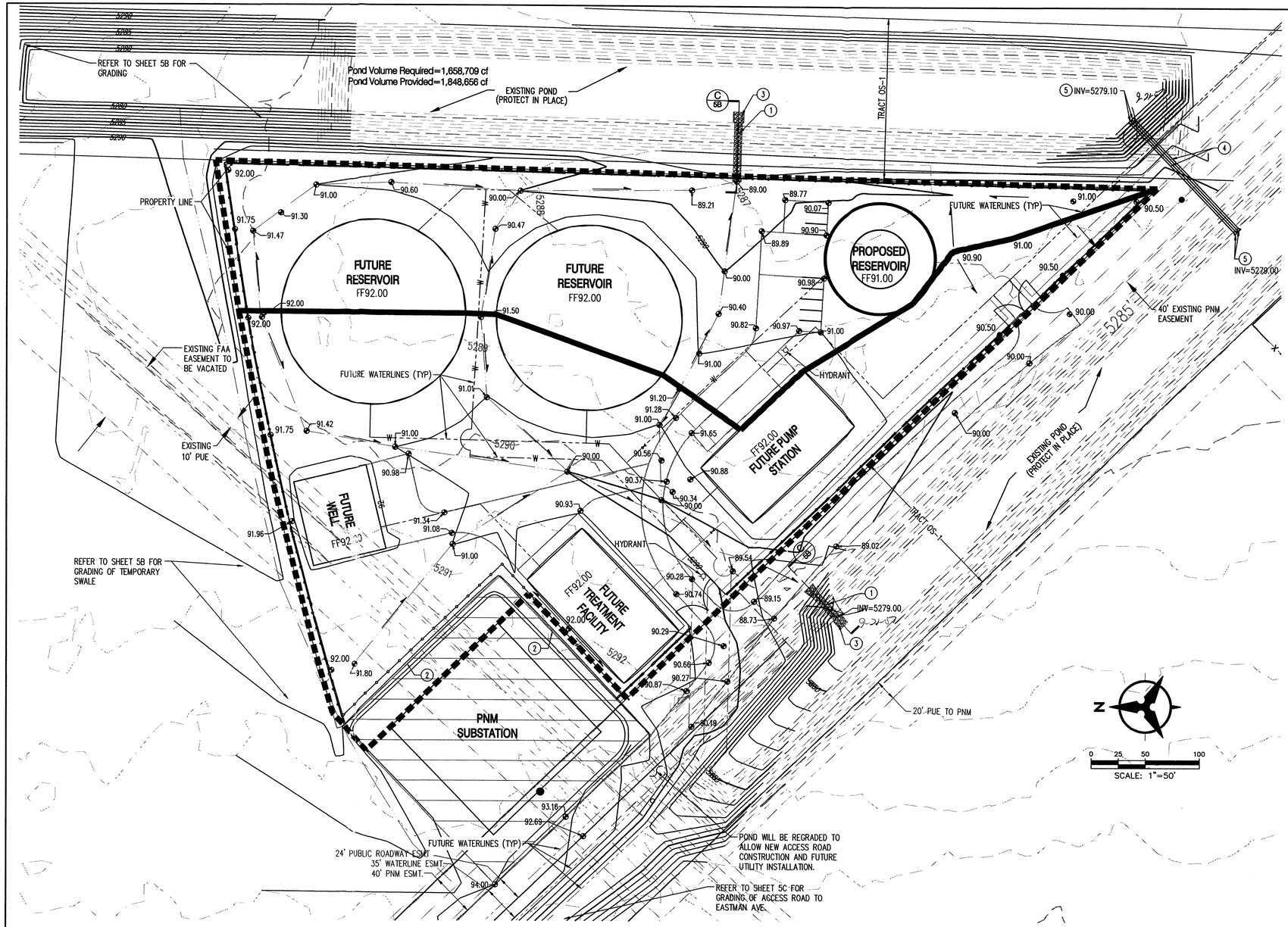
MICRO-FILM INFORMATION

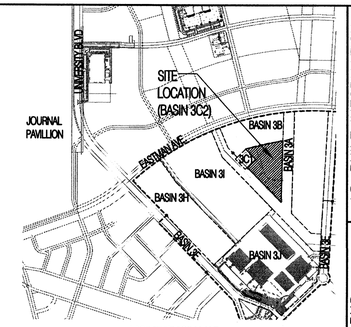
RECORDED BY	DATE
NO.	DATE

STATE PLANE COORDINATES (CENTRAL ZONE, NAD83/NAVD88) N=1460471.432, E=1521388.180 (GROUND) ELEV.=4981.17

SURVEY INFORMATION
FIELD NOTES

NO.	DATE	BY





VICINITY/BASIN MAP

Existing Conditions
The elevated reservoir site ("The Site") is located on approximately 6.24 acre lot, which currently is undeveloped and slopes 0.5% to 1.0% from the west to east. It is located in between the two Regional Retention Ponds ("Ponds") constructed with the Albuquerque Studios Site (COA Hydro File #R16/D002A).

In addition, a PNM substation has been constructed to the northwest of The Site. The majority of this site is self contained and will not adversely affect the elevated reservoir site (See COA Hydro File #R16/D002B).

Once The Site is completed, it will be bound on three sides. The Ponds to the east and southwest and a future developed parcel to the north.

Offsite Drainage
Current drainage from the undeveloped land to the west of the site drains into the existing pond constructed with the Albuquerque Studios site via storm drain and surface flow. A temporary swale west of the access road will direct flows to the existing pond. All drainage to the east of these adjacent tracts continues to outfall to the existing pleye system to the east and will not affect the site. Drainage from the north will be diverted east into the existing ponds via a temporary swale. Upon development of the future parcels, drainage will be conveyed to the existing ponds in a manner suitable to each specific site plan, and each site will be subject to future submittal and approval.

Proposed Site Grading
The slope of the site under proposed conditions will be between 0.5% to 1.0%. A portion of the site will drain to the eastern pond while the remainder of the site will drain to the southwestern pond (See drainage basin boundaries).

All drainage will be diverted into a rip-rap rundown to prevent erosion. The ponds have previously been constructed to account for developed flows from this site with the Albuquerque Studios submittal. Currently there are only a few basins contributing to the existing Ponds. Under current conditions for these basins (including the developed flows from The Site), the maximum water surface elevation (MWSEL) is approximately 5284.60.

(Note: the ponds were sized to accept the 100 year, 10 day storm generated by the fully developed drainage area in accordance with the methodology outlined in the DPM section 22.2. Developed land treatments for Mesa del Sol sites are assumed to be 90% treatment D and 10% treatment B. Currently the top of the ponds extend to 5289.00).

A portion of the existing western pond constructed with the Albuquerque Studios site will be filled in order to allow room for an access road and future utilities to serve both the Elevated Reservoir site and the Mesa del Sol development. The pond to the east will be extended to the north to account for this volume. (Total pond volume provided after pond adjustments = 42.4 acre-ft, Total volume required for current contributing basins to the existing ponds = 18.9 acre-ft - see Table 1).

Floodplain
In accordance with FEMA Community Map Panel #35001C0555E, the site is not located within a floodplain.

Conclusion
This drainage submittal has been prepared in accordance with City of Albuquerque requirements. This plan demonstrates the proposed grading and drainage design. The implementation of this design would result in the safe passage and retention of the 100 yr, 10 day storm event. With this submittal we request COA Hydrology Department approval for DRB Site Plan approval, foundation permit approval and rough grading approval.

KEYED NOTES

1. INSTALL RIP RAP WEIR AND RUNDOWN PER DETAIL A & B, SHEET 5B. TRANSITION FROM WIER SECTION TO RUNDOWN SECTION OVER 10'.
2. INSTALL TURN BLOCKS FOR DRAINAGE EVERY 20 FT,O.C.
3. INSTALL 10'X10' RIP RAP BLANKET.
4. INSTALL 2-36" RCP STORM DRAIN PIPES.
5. INSTALL 36" RCP END SECTION.

ROUGH GRADING (±0.5'):

APPROVED FOR ROUGH GRADING DATE

GENERAL NOTES

1. CONTRACTOR MUST OBTAIN A TOPSOIL DISTURBANCE PERMIT FROM THE ENVIRONMENTAL HEALTH DIVISION PRIOR TO CONSTRUCTION.
2. THE CONTRACTOR IS TO REFER TO EARTHWORK SPECIFICATION AS NOTED IN THE SOILS REPORT BY GEO-TEST, INC. DATED 1/07 (JOB NO. 1-61202).
3. THE CONTRACTOR SHALL CONFORM TO ALL CITY, COUNTY, STATE, AND FEDERAL DUST CONTROL MEASURES & REQUIREMENTS AND WILL BE RESPONSIBLE FOR PREPARING AND OBTAINING ALL NECESSARY APPLICATIONS AND APPROVALS.
4. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE LOTS INTO PUBLIC RIGHT-OF-WAY. THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AND WETTING THE SOIL TO KEEP IT FROM BLOWING.
5. BOULDERS GREATER THAN 3 FEET IN DIAMETER EXCAVATED DURING GRADING ACTIVITIES SHALL BE STOCKPILED AND DISPOSED OF AT THE DISCRETION OF THE OWNER.
6. ALL WALLS SHOWN ARE TO BE PLACED ALONG PROPERTY LINE.

TABLE 1
ELEVATED RESERVOIR - DEVELOPED HYDRAULIC CALCULATIONS
Basin Data Table

This table is based on the DPM Section 22.2, Zone 2

SUB-BASIN ID	Area (SQ. FT)	Area (AC.)	Land Treatment Percentages A	B	C	D	Q(100) (cfs/ac.)	Q(100) (cfs)	WT E (inches)	$V(100)_{360}$ (CF)	$V(100)_{10day}$ (CF)	$V(100)_{10day}$ (Acre-FT)
Basin 3A (Open Space/Regional Retention Ponds)	531834	12.21	0.0%	50.0%	50.0%	0.0%	3.33	40.60	1.27	56286	56286	1.29
Basin 3B*	337468	7.75	50.0%	50.0%	0.0%	0.0%	1.92	14.87	0.66	18420	18420	0.42
Basin 3C1 (PNM Substation)	39640	0.91	0.0%	10.0%	0.0%	90.0%	4.46	4.06	1.99	6560	11317	0.26
Basin 3C2 (Elevated Reservoir)	271814	6.24	0.0%	10.0%	0.0%	90.0%	4.46	27.82	1.99	44985	77603	1.78
Basin 3E (University Blvd and Hawking Dr)	735836	16.89	0.0%	10.0%	0.0%	90.0%	4.46	75.31	1.99	121781	210081	4.82
Basin 3H*	689417	15.83	50.0%	50.0%	0.0%	0.0%	1.92	30.39	0.66	37631	37631	0.86
Basin 3I*	1111881	25.53	50.0%	50.0%	0.0%	0.0%	1.92	49.01	0.66	60690	60690	1.39
Basin 3J (Albuquerque Studios)	1231689	28.28	0.0%	10.0%	0.0%	90.0%	4.46	126.05	1.99	203844	351647	8.07
Total	*4080276.80*	*93.67*								*475491.81*	*823675.14*	*18.91*

** UNDEVELOPED CONDITIONS AT THIS TIME*

LEGEND

- 91.62 PROPOSED SPOT ELEVATIONS
- 92.46 EXISTING SPOT ELEVATIONS
- 5470 EXISTING CONTOUR W/ INDEX ELEVATION
- FLOW ARROW
- W PROPOSED TANK WATER LINE
- DRAINAGE BASIN BOUNDARIES
- PROPOSED WALL
- PROPOSED SLOPE

BHI JOB NO. 070204

SURVEY INFORMATION
FIELD NOTES

NO.	BY	DATE

BENCH MARKS
AS-BUILT INFORMATION

ACS 3-1/4" ALUMINUM CAP RIVETED TO A TUBE SET IN A CONCRETE BASE IN THE GROUND STAMPED "5-D-14, 1987". FROM THE RIO BRAVO BLVD. AND BROADWAY INTERSECTION GO SOUTH 0.9 MILES AND PROCEED 123' WEST OF THE CENTERLINE. STATE PLANE COORDINATES (CENTRAL ZONE, NAD83/NAVD88) N=1460471.432, E=1521388.180 (GROUND) ELEV=4981.17

CONTRACTOR STAKED BY DATE
WORK INSPECTED BY DATE
AS-BUILTS BY DATE
FIELD VERIFICATION BY DATE
DRAWINGS CORRECTED BY DATE
MICRO-FILM INFORMATION
RECORDED BY DATE
NO. DATE

ENGINEER'S SEAL
JEFFREY L. MULBERRY
NEW MEXICO
16858
REGISTERED PROFESSIONAL ENGINEER
7-24-07

NO.	DATE	BY	REMARKS
			REVISIONS
			DESIGN
			DESIGNED BY CBP DATE 01/2007
			DRAWN BY MTD DATE 01/2007
			CHECKED BY DJG DATE 01/2007

Bohannan ▲ Huston INC.
Courtyard I 7500 Jefferson St. NE Albuquerque, NM 87109-4335
ENGINEERING ▲ SPATIAL DATA ▲ ADVANCED TECHNOLOGIES

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

RECEIVED
JUL 25 2007
HYDROLOGY SECTION

MESA DEL SOL
ELEVATED WATER RESERVOIR
SITE GRADING, DRAINAGE, AND UTILITY PLAN

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR.	MO./DAY/YR.

CITY PROJECT NO. DRB . | ZONE MAP NO. R-16-Z | SHEET 5A OF 5

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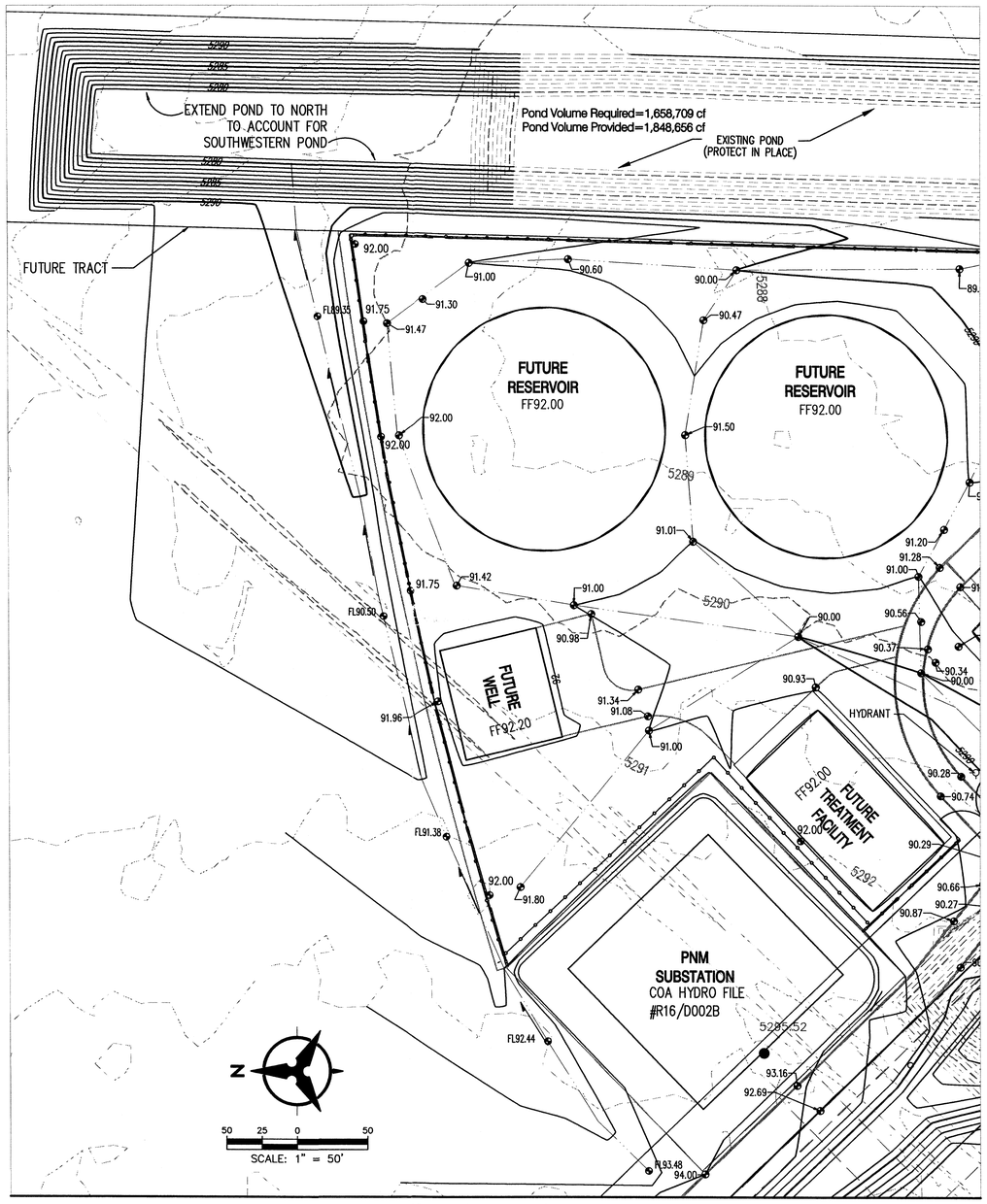
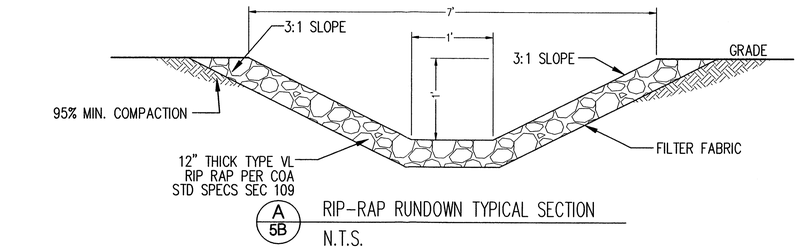


MATCHLINE SEE SHEET 5C



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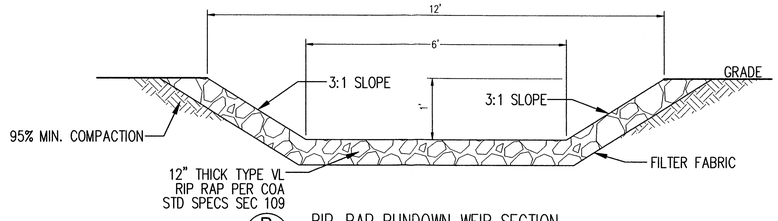

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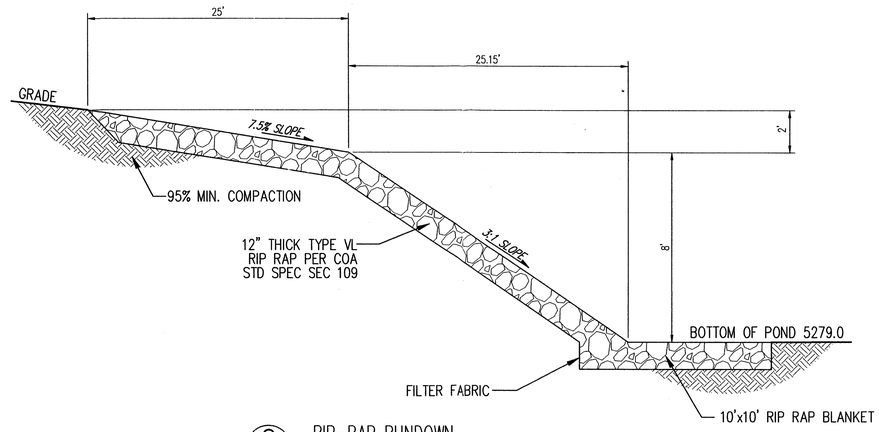

C/5B RIP-RAP RUNDOWN
N.T.S.

LEGEND

- PROPERTY LINE
- 5289 EXISTING CONTOUR
- 90 PROPOSED INDEX CONTOUR
- 91 PROPOSED INTERMEDIATE CONTOUR
- 92.50 PROPOSED SPOT ELEVATION
- PROPOSED SWALE FLOWLINE

BHI JOB NO. 070204

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

BENCH MARKS

ACS 3-1/4" ALUMINUM CAP REVETED TO A TUBE SET IN A CONCRETE BASE IN THE GROUND STAMPED "5-Q-14, 1987". FROM THE RIO BRAVO BLVD. AND BROADWAY INTERSECTION GO SOUTH 0.9 MILES AND PROCEED 123' WEST OF THE CENTERLINE.

STATE PLANE COORDINATES (CENTRAL ZONE, NAD83/NAVD88) N=1460471.432, E=1521388.180 (GROUND) ELEV.=4981.17

AS-BUILT INFORMATION

CONTRACTOR STARTED BY DATE
INSPECTOR'S ACCEPTANCE BY DATE
FIELD VERIFICATION BY DATE
CORRECTED BY DATE

MICRO-FILM INFORMATION

RECORDED BY DATE
NO. DATE

ENGINEER'S SEAL

JEFFREY L. MULBERRY
NEW MEXICO
16858
REGISTERED PROFESSIONAL ENGINEER
7-24-07

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	
		DESIGNED BY	DATE
		DRAWN BY	DATE
		CHECKED BY	DATE

Bohannan ▲ Huston INC
Courtyard I 7500 Jefferson St. NE Albuquerque, NM 87109-4335
ENGINEERING ▲ SPATIAL DATA ▲ ADVANCED TECHNOLOGIES

CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

RECEIVED
JUL 25 2007
HYDROLOGY SECTION

MESA DEL SOL EVEVATED RESERVOIR
CONCEPTUAL OFFSITE GRADING & DRAINAGE PLAN

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR.	MO./DAY/YR.

CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
DRB	R-16-Z	5B	5

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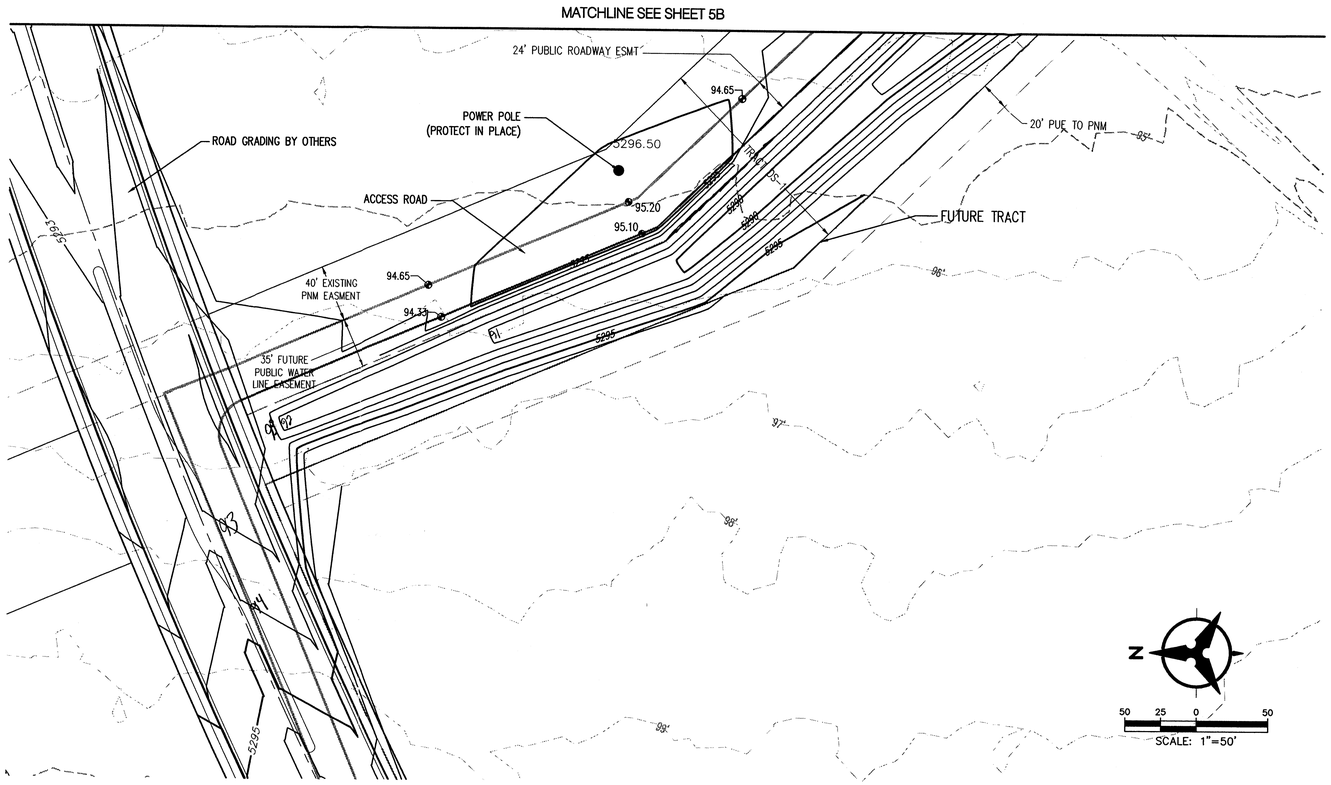

LEGEND

- PROPERTY LINE
- 5289 EXISTING CONTOUR
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- 91 PROPOSED INTERMEDIATE CONTOUR
- 92.50 PROPOSED SPOT ELEVATION
- PROPOSED SWALE FLOWLINE

Bohannan ▲ Huston INC.

Courtyard I 7500 Jefferson St. NE Albuquerque, NM 87109-4335

ENGINEERING ▲ SPATIAL DATA ▲ ADVANCED TECHNOLOGIES

CITY OF ALBUQUERQUE
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DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR.	MO./DAY/YR.

CITY PROJECT NO. DRB | ZONE MAP NO. R-16-Z | SHEET 5C OF 5

BHI JOB NO. 070204

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Tue, 24-Jul-2007 - 8:42:am, Plotted by: MBALASKOVITS

SURVEY INFORMATION

FIELD NOTES

NO.	BY	DATE

BENCH MARKS

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STATE PLANE COORDINATES (CENTRAL ZONE, NAD83/MAVD88) N=1460471.432, E=1521388.180 (GROUND) ELEV.=4981.17

AS-BUILT INFORMATION

CONTRACTOR	DATE
WORK STAKED BY	
INSPECTOR'S ACCEPTANCE BY	DATE
FIELD VERIFICATION BY	DATE
DRAWINGS CORRECTED BY	DATE

MICRO-FILM INFORMATION

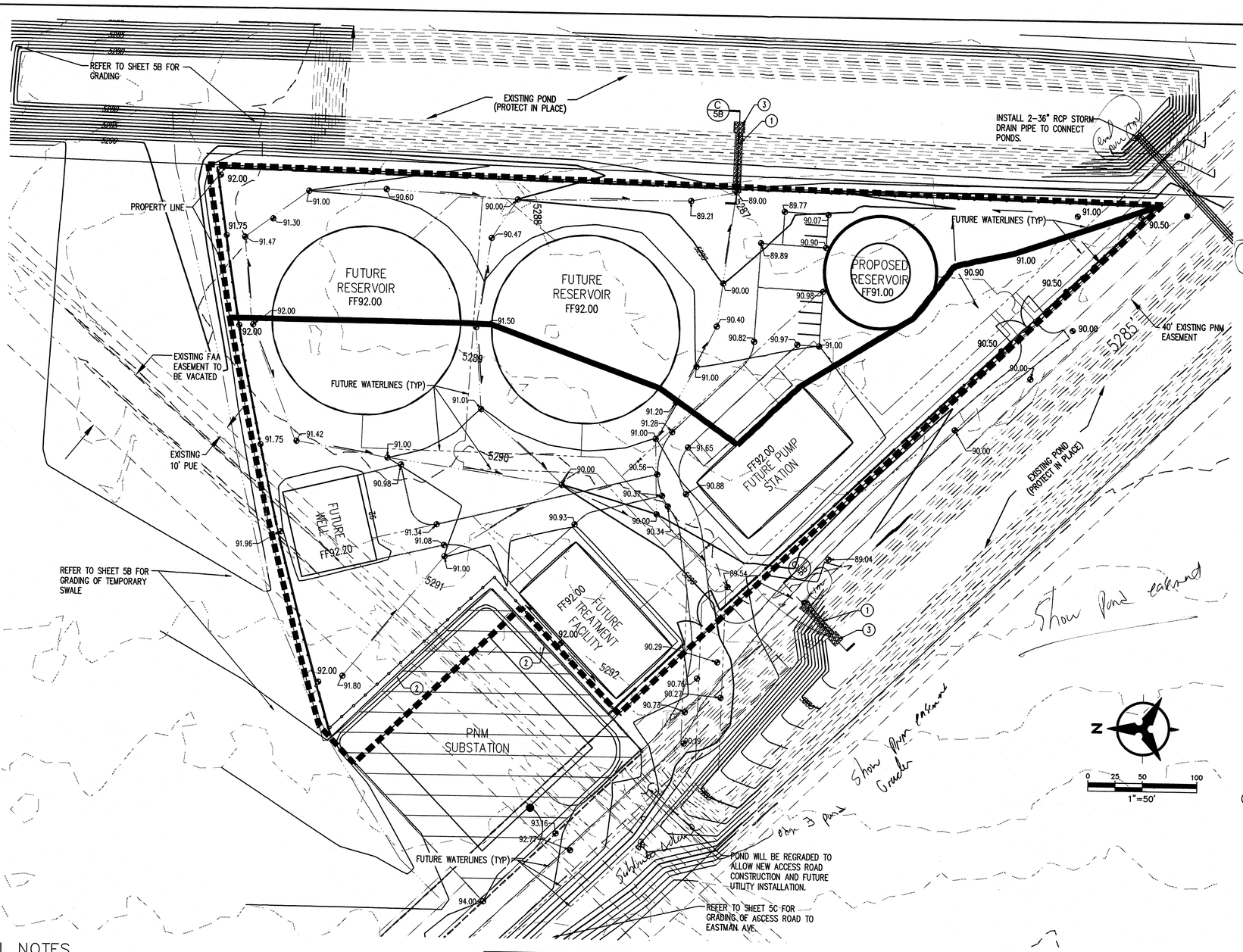
RECORDED BY	DATE
NO.	DATE

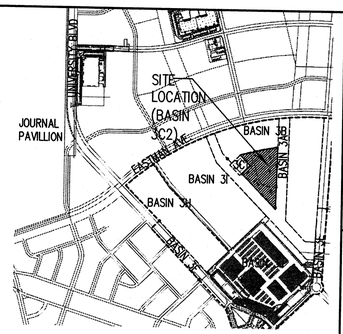
ENGINEER'S SEAL

JEFFREY L. MULBERRY
NEW MEXICO
16858
REGISTERED PROFESSIONAL ENGINEER
7.24.07

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

DESIGNED BY DATE
DRAWN BY DATE
CHECKED BY DATE





VICINITY/BASIN MAP

Existing Conditions
The elevated reservoir site ("The Site") is located on approximately 6.24 acre lot, which currently is undeveloped and slopes 0.5% to 1.0% from the west to east. It is located in between the two Regional Retention Ponds ("Ponds") constructed with the Albuquerque Studios Site (COA Hydro File #R16/D002A).

In addition, a PNM substation has been constructed to the northwest of The Site. The majority of this site is self contained and will not adversely affect the elevated reservoir site (See COA Hydro File #R16/D002B).

Once The Site is completed, it will be bound on three sides. The Ponds to the east and southwest and a future developed parcel to the north.

Offsite Drainage
Current drainage from the undeveloped land to the west of the site drains into the existing pond constructed with the Albuquerque Studios site via storm drain and surface flow. A temporary swale west of the access road will direct flows to the existing pond. All drainage to the east of these adjacent tracts continues to outfall to the existing playa system to the east and will not affect the site. Drainage from the north will be diverted east into the existing ponds via a temporary swale. Upon development of the future parcels, drainage will be conveyed to the existing ponds in a manner suitable to each specific site plan, and each site will be subject to future submittal and approval.

Proposed Site Grading
The slope of the site under proposed conditions will be between 0.5% to 1.0%. A portion of the site will drain to the eastern pond while the remainder of the site will drain to the southwestern pond (See drainage basin boundaries).

All drainage will be diverted into a rip-rap rundown to prevent erosion. The ponds have previously been constructed to account for developed flows from this site with the Albuquerque Studios submittal. Currently there are only a few basins contributing to the existing Ponds. Under current conditions for these basins (including the developed flows from The Site), the maximum water surface elevation (MWSEL) is approximately 5284.60.

(Note: the ponds were sized to accept the 100 year, 10 day storm generated by the fully developed drainage area in accordance with the methodology outlined in the DPM section 22.2. Developed land treatments for Mesa del Sol sites are assumed to be 90% treatment D and 10% treatment B. Currently the top of the ponds extend to 5289.00).

A portion of the existing western pond constructed with the Albuquerque Studios site will be filled in order to allow room for an access road and future utilities to serve both the Elevated Reservoir site and the Mesa del Sol development. The pond to the east will be extended to the north to account for this volume. (Total pond volume provided after pond adjustments = 42.4 acre-ft, Total volume required for current contributing basins to the existing ponds = 18.9 acre-ft – see Table 1).

Floodplain
In accordance with FEMA Community Map Panel #35001C0555E, the site is not located within a floodplain.

Conclusion
This drainage submittal has been prepared in accordance with City of Albuquerque requirements. This plan demonstrates the proposed grading and drainage design. The implementation of this design would result in the safe passage and retention of the 100 yr, 10 day storm event. With this submittal we request COA Hydrology Department approval for DRB Site Plan approval, foundation permit approval and rough grading approval.

KEYED NOTES

1. INSTALL RIP RAP WEIR AND RUNDOWN PER DETAIL A & B, SHEET 5B. TRANSITION FROM WIER SECTION TO RUNDOWN SECTION OVER 10'.
2. INSTALL TURN BLOCKS FOR DRAINAGE EVERY 20 FT,O.C.
3. INSTALL 10'X10' RIP RAP BLANKET.

ROUGH GRADING	(±0.5'):
APPROVED FOR ROUGH GRADING	DATE

RECEIVED JUL 0 9 2007 HYDROLOGY SECTION

GENERAL NOTES

1. CONTRACTOR MUST OBTAIN A TOPSOIL DISTURBANCE PERMIT FROM THE ENVIRONMENTAL HEALTH DIVISION PRIOR TO CONSTRUCTION.
2. THE CONTRACTOR IS TO REFER TO EARTHWORK SPECIFICATION AS NOTED IN THE SOILS REPORT BY GEO-TEST, INC. DATED 1/07 (JOB NO. 1-61202).
3. THE CONTRACTOR SHALL CONFORM TO ALL CITY, COUNTY, STATE, AND FEDERAL DUST CONTROL MEASURES & REQUIREMENTS AND WILL BE RESPONSIBLE FOR PREPARING AND OBTAINING ALL NECESSARY APPLICATIONS AND APPROVALS.
4. THE CONTRACTOR SHALL ENSURE THAT NO SOIL ERODES FROM THE LOTS INTO PUBLIC RIGHT-OF-WAY. THIS CAN BE ACHIEVED BY CONSTRUCTING TEMPORARY BERMS AND WETTING THE SOIL TO KEEP IT FROM BLOWING.
5. BOULDERS GREATER THAN 3 FEET IN DIAMETER EXCAVATED DURING GRADING ACTIVITIES SHALL BE STOCKPILED AND DISPOSED OF AT THE DISCRETION OF THE OWNER.
6. ALL WALLS SHOWN ARE TO BE PLACED ALONG PROPERTY LINE.

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Mon, 9-Jul-2007 - 8:36:am, Plotted by: BORTEGA

TABLE 1
ELEVATED RESERVOIR - DEVELOPED HYDRAULIC CALCULATIONS
Basin Data Table
This table is based on the DPM Section 22.2, Zone 3

SUB-BASIN ID	Area (SQ.FT)	Area (AC.)	Land Treatment Percentages A	B	C	D	Q(100) (cfs/ac.)	Q(100) (cfs)	WTE (inches)	$V(100)_{bas}$ (CF)	$V(100)_{today}$ (CF)	$V(100)_{today}$ (Acre-FT)
Basin 3A (Open Space/Regional Retention Ponds)	531834	12.21	0.0%	50.0%	50.0%	0.0%	3.33	40.60	1.27	56286	56286	1.29
Basin 3E*	337468	7.75	50.0%	50.0%	0.0%	0.0%	1.92	14.87	0.66	18420	18420	0.42
Basin 3C1 (PNM Substation)	39640	0.91	0.0%	10.0%	0.0%	90.0%	4.46	4.06	1.99	8560	11317	0.26
Basin 3C2 (Elevated Reservoir)	271814	6.24	0.0%	10.0%	0.0%	90.0%	4.46	27.82	1.99	44985	77803	1.78
Basin 3E (University Blvd and Hawkling Dr)	735836	16.89	0.0%	10.0%	0.0%	90.0%	4.46	75.31	1.99	121781	210081	4.82
Basin 3F*	689417	15.83	50.0%	50.0%	0.0%	0.0%	1.92	30.39	0.66	37631	37631	0.86
Basin 3F	1111881	25.53	50.0%	50.0%	0.0%	0.0%	1.92	49.01	0.66	60690	60690	1.39
Basin 3J (Albuquerque Studios)	1231689	28.28	0.0%	10.0%	0.0%	90.0%	4.46	126.05	1.99	203844	351647	8.07
Total	4080276.80	93.67								475491.81	823675.14	18.91

** UNDEVELOPED CONDITIONS AT THIS TIME*

LEGEND

91.62	PROPOSED SPOT ELEVATIONS
92.48	EXISTING SPOT ELEVATIONS
5470	EXISTING CONTOUR W/ INDEX ELEVATION
	FLOW ARROW
16"W	PROPOSED TANK WATER LINE
	DRAINAGE BASIN BOUNDARIES
	PROPOSED WALL
	PROPOSED SLOPE

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CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

MESA DEL SOL
ELEVATED WATER RESERVOIR
SITE GRADING AND DRAINAGE PLAN

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR.	MO./DAY/YR.

CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
.	R-16-Z	5A	5

SURVEY INFORMATION
FIELD NOTES

NO.	BY	DATE

BENCH MARKS
AS-BUILT INFORMATION

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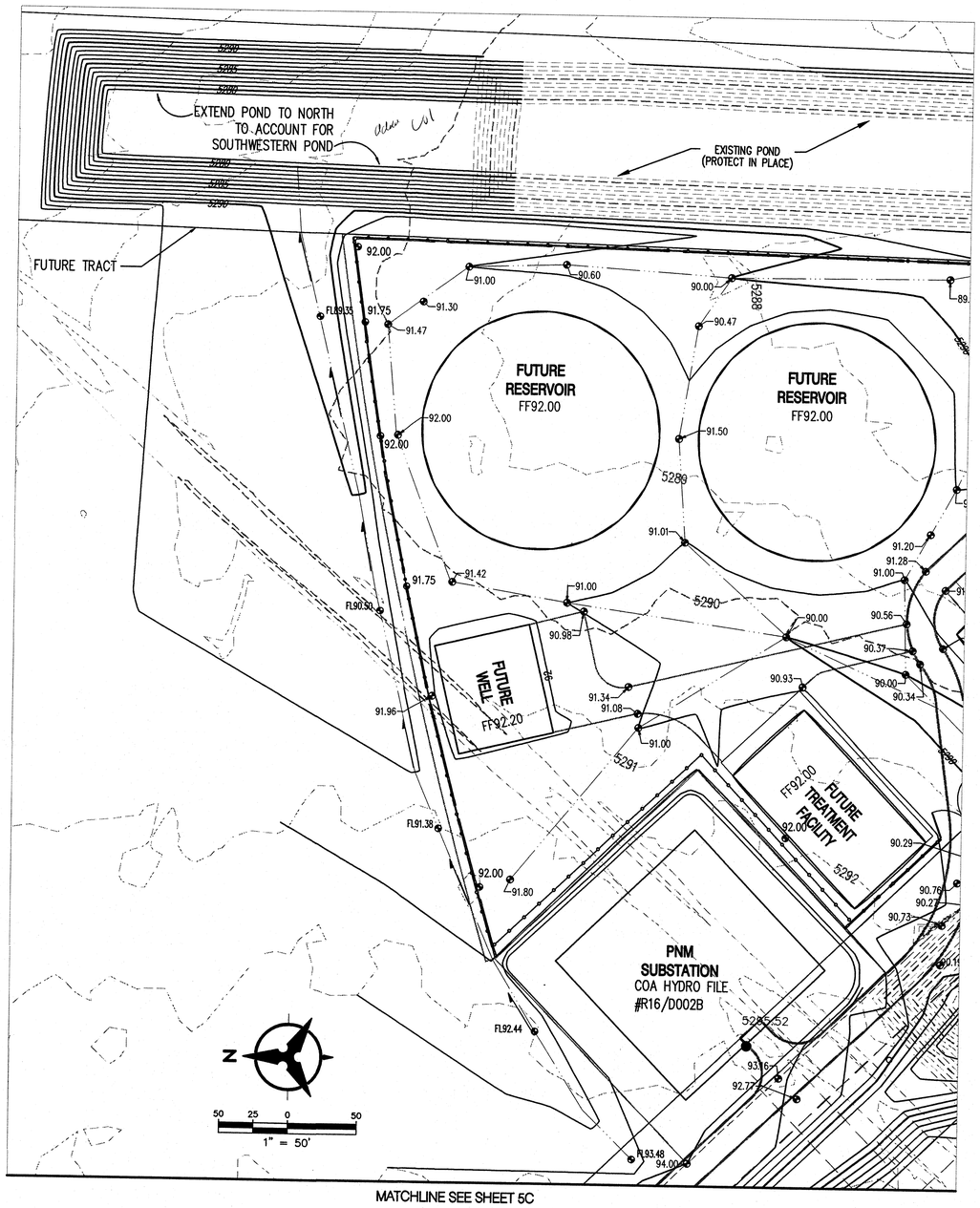
CONTRACTOR STAKED BY DATE
INSPECTOR'S ACCEPTANCE BY DATE
FIELD VERIFICATION BY DATE
AS-BUILTS CORRECTED BY DATE

MICRO-FILM INFORMATION
RECORDED BY DATE
NO.

STATE PLANE COORDINATES (CENTRAL ZONE, NAD83/NAVD88) N=1460471.432, E=1521388.180 (GROUND) ELEV.=4981.17

ENGINEER'S SEAL
JEFFREY L. MULLER NEW MEXICO 16858 PROFESSIONAL ENGINEER
DRB

NO.	BY	REMARKS	DATE
		REVISIONS	
		DESIGN	DATE 01/2007
	CBP	DESIGNED BY	DATE 01/2007
	MTD	DRAWN BY	DATE 01/2007
	DJG	CHECKED BY	



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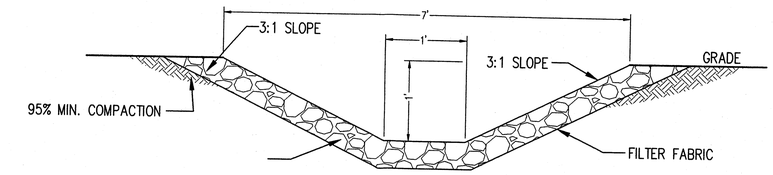
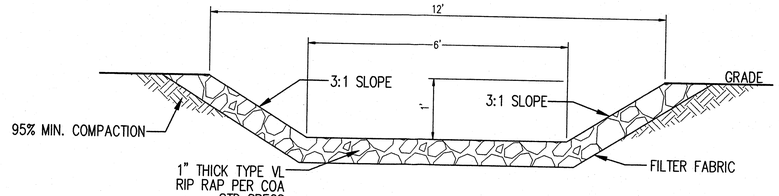


A / 5B RIP-RAP RUNDOWN TYPICAL SECTION
N.T.S.



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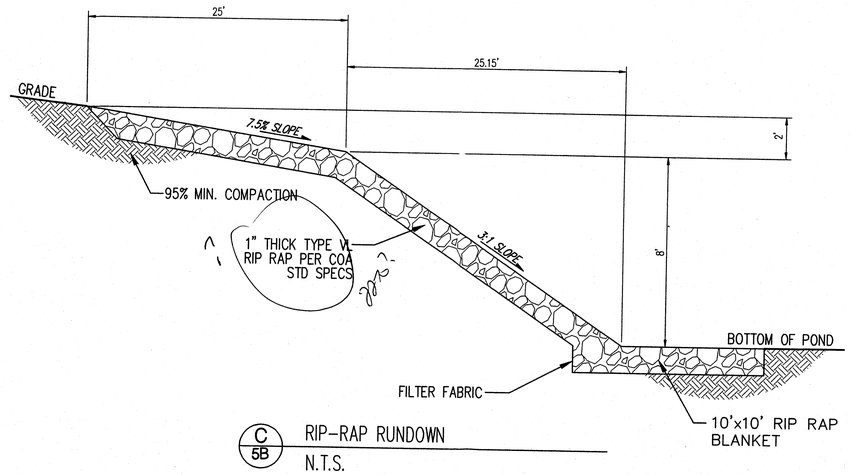

C / 5B RIP-RAP RUNDOWN
N.T.S.

LEGEND

- PROPERTY LINE
- 5289 EXISTING CONTOUR
- 90 PROPOSED INDEX CONTOUR
- 91 PROPOSED INTERMEDIATE CONTOUR
- 92.50 PROPOSED SPOT ELEVATION
- PROPOSED SWALE FLOWLINE

BHI JOB NO. 070204

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CITY OF ALBUQUERQUE
DEPARTMENT OF MUNICIPAL DEVELOPMENT

MESA DEL SOL EVEVATED RESERVOIR OFFSITE GRADING PLAN

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR.	MO./DAY/YR.

CITY PROJECT NO.

ZONE MAP NO. R-16-Z

SHEET 5B OF 5

JUL 06 2007 HYDROLOGY SECTION

SURVEY INFORMATION
FIELD NOTES

NO.	DATE	BY

ENGINEER'S SEAL
JEFFREY L. MULBERRY
NEW MEXICO 16858
REGISTERED PROFESSIONAL ENGINEER
7-9-07
DRB

BENCH MARKS
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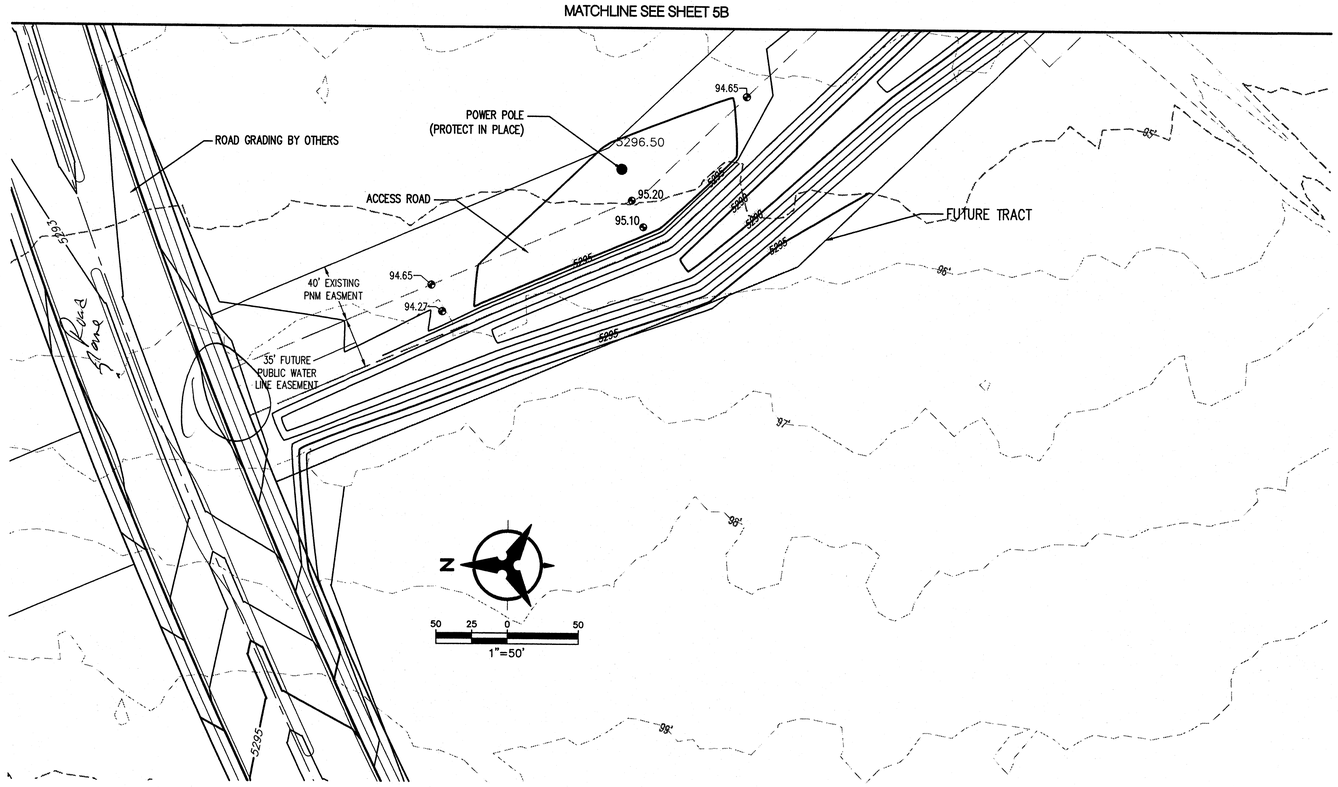
FIELD DEFINITION BY	DATE
DRAWING CORRECTED BY	DATE

MICRO-FILM INFORMATION

RECORDED BY	DATE
NO.	DATE

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	DESIGNED BY
			DRAWN BY
			CHECKED BY

MATCHLINE SEE SHEET 5B



LEGEND

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ENGINEERING ▲ SPATIAL DATA ▲ ADVANCED TECHNOLOGIES

CITY OF ALBUQUERQUE
DEPARTMENT OF
MUNICIPAL DEVELOPMENT

MESA DEL SOL EVEVATED RESERVOIR
OFFSITE GRADING PLAN

DESIGN REVIEW COMMITTEE	CITY ENGINEER APPROVAL	LAST DESIGN UPDATE	MO./DAY/YR.	MO./DAY/YR.

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CITY PROJECT NO.	ZONE MAP NO.	SHEET	OF
	R-16-Z	5C	5

BHI JOB NO. 070204

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SURVEY INFORMATION

FIELD NOTES

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CONTRACTOR — DATE
STAKED BY — DATE
INSPECTOR'S ACCEPTANCE BY — DATE
FIELD VERIFICATION BY — DATE
DRAWINGS CORRECTED BY — DATE

MICRO-FILM INFORMATION

RECORDED BY — DATE
NO. — DATE

ENGINEER'S SEAL

JEFFREY L. MULBURY
NEW MEXICO
16858
REGISTERED PROFESSIONAL ENGINEER
7-9-07

DRB

NO.	DATE	REMARKS	BY
		REVISIONS	
		DESIGN	

DESIGNED BY — DATE
DRAWN BY — DATE
CHECKED BY — DATE