LAWRENCE & ASSOCIATES
ENGINEERS & GEOLOGISTS

019029.00

DRAINAGE CALCULATIONS

FOR

MAMMOTH DISPOSAL TRANSFER STATION PROJECT

59 COMMERCE DRIVE / 264 COMMERCE DRIVE

MAMMOTH LAKES, CALIFORNIA

April 29, 2021

Prepared For:

Mammoth Disposal Company, LLC
100 Sunland Indian Reservation Road
Bishop, California 93514

Table of Contents

Contents

Figures

Attachments

References

- Design Manual, Mammoth Lakes Storm Drainage and Erosion Control, July 1984, Brown and Caldwell and Triad Engineering
- 2005 Storm Drain Master Plan Update, Town of Mammoth Lakes, May 26, 2005, Boyle Engineering Corporation

1. Introduction

This report analyzes the hydrology, including pre- and post-development conditions associated with the Mammoth Disposal Transfer Project (referred to as "Project"), which includes two industrial parcels (59 Commerce Drive, and 264 Commerce Drive) within the Mammoth Lakes Business Park, along Commerce Drive, near the east side of Town of Mammoth Lakes.

The overall Project proposes to: 1) expand the existing transfer station at the 59 Commerce Drive Site, 2) relocate the buy-back/recycling center (currently at the 59 Commerce Drive Site) to the 264 Commerce Drive Site, and 3) relocate the fleet maintenance operations (currently at the 264 Commerce Drive Site) to the 59 Commerce Drive Site. General descriptions of both sites are included below with site specific information shown in the hydrology section.

1.1. 59 Commerce Drive Site

This site at 59 Commerce Drive includes an existing office, limited volume transfer station, recycling and buy-back center, public unloading areas, and bin storage. The buildings and transfer/recycling operations, which include a combination of paved and gravel areas, occurs on the east half of the site. The facility uses the graveled west half of the site as secondary access (when needed) and bin storage. An estimated 10% of the total site is pervious or vegetated. Two existing infiltration systems are present at the site, including a surface collection storm water system and drywell on the east half, and surface drainage to an infiltration trench on the west half of the site.

Proposed development at this site includes removal of the bin storage and graveled areas, and replacement with a combination of buildings and paved surfaces. Both existing infiltration features will be replaced with new surface drainage features (swales and inlets) ultimately to new onsite infiltration as further described and sized by this document.

1.2. 264 Commerce Drive Site

The site at 264 Commerce Drive includes an existing metal building, paved areas, perimeter walls, and limited vegetation along the western and northern property boundaries. The site generally slopes towards the center of the site to existing storm drain inlets that flow to two onsite drywells.

Proposed development at this site retains the existing building and paved areas with only the addition of a 6-foot screen fence proposed on the southern boundary. For purposes of hydrologic

assessment and overall impervious or pervious surfaces, the existing and development conditions are considered the same.

2. Hydrology

As indicated earlier, both sites within this Project include surface runoff to existing infiltration facilities. For purposes of this report, both sites were analyzed for pre- and post-development conditions based on the 2005 Storm Drain Master Plan Update for the Town of Mammoth Lakes (2005 Master Plan), including runoff rate calculations and design criteria for onsite storage (and subsequent infiltration) requirements.

The 2005 Master Plan, in Table 3-1A, provides an *Applicable cfs/acre* based on the land use type. This table is used for small drainage basins such as this Project and is copied for reference below.

Table 3-1A, Applicable cfs/acre by Land Use Type
(2005 Storm Drain Master Plan Update, Table 3-1A)

Land Use Type	20-yr	100-yr
Natural	0.23	0.43
Single Family Res.	0.65	1.3
High Density Res.	1.14	1.9
Commercial	1.22	1.93

Applying the table above provides an intensity in cubic-feet-per-second (cfs) per acre that can be multiplied by facility acreage to determine specific event flow rates. The Project sites include a combination of Natural and Commercial from the table above, however, for commercial, there is no distinction between paved versus graveled (or pervious) areas within the commercial areas. As such, using the table and values provides a conservative and higher intensity than would be anticipated under existing conditions for the graveled transfer station. Regardless, developed conditions, which is the basis for infiltration storage requirements is based on fully paved areas and appropriately uses the commercial land use type. Neither of the residential land use types are applicable to this Project.

Table 1 on the following page, summarizes existing conditions based on facility acreage, land use, and factors from Table 3-1A above. **Table 2** summarizes development conditions. The 59 Commerce Drive site, for existing conditions, is divided into an east half and west half. For developed conditions, the site is divided into four drainage areas, lettered A through D, corresponding to onsite storage locations as shown on **Figure A**.

Figure A – Drainage Sheds, Proposed Conditions
59 Commerce

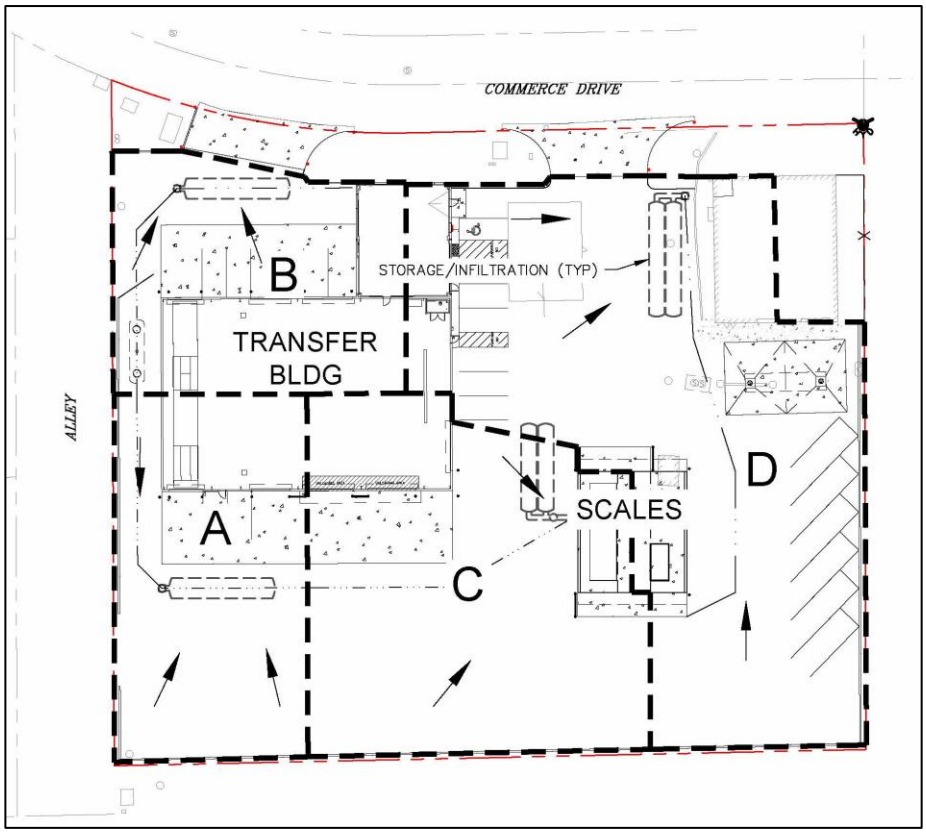


Figure A indicates overall contributing drainage sheds for the developed conditions at the 59 Commerce Drive site. Stormwater storage and infiltration systems are conceptually shown. The site does not receive run-on from adjacent parcels. Peak flows are shown on the following tables, including **Table 1** for existing (pre-project) conditions, and **Table 2** for developed conditions.

Table 1 – Peak Flow Summary, Existing Conditions

Drainage Area	Area (Acres)	% Nat	% Com	I_{20} (cfs/ac)	I_{100} (cfs ac)1	Q_{20} (cfs)	Q_{100} (cfs)
59 Commerce							
East Half	0.82	10%	90%	1.12	1.78	**0.92**	**1.46**
West Half	0.82	50%	50%	0.73	1.18	**0.59**	**0.97**
					totals	**1.51**	**2.43**
264 Commerce	0.55	5%	95%	1.17	1.86	**0.64**	**1.02**
					totals	**0.64**	**1.02**

Notes:
1. Intensities (I_{20} and I_{100}) calculated based on % of Natural and Commercial shown multiplied by the corresponding values in Table 3-1A and then summarized.
2. Flow rates (Q_{20} and Q_{100}) calculated by corresponding intensity multiplied by area.

3. The West Half % Natural was increased to reflect the existing pervious surface (gravel) at the site.

Table 2 – Peak Flow Summary, Development (post-project) Conditions

Drainage Area	Area (Acres)	% Nat	% Com	I_{20} (cfs/ac)	I_{100} (cfs ac)	Q_{20} (cfs)	Q_{100} (cfs)
59 Commerce							
A	0.26	10%	90%	1.12	1.78	**0.29**	**0.46**
B	0.28	10%	90%	1.12	1.78	**0.31**	**0.50**
C	0.43	10%	90%	1.12	1.78	**0.48**	**0.77**
D	0.68	10%	90%	1.12	1.78	**0.76**	**1.21**
					totals	**1.85**	**2.94**
264 Commerce	0.55	5%	95%	1.17	1.86	**0.64**	**1.02**
					totals	**0.64**	**1.02**

Notes:
1. Intensities (I_{20} and I_{100}) calculated based on % of Natural and Commercial shown multiplied by the corresponding values in Table 3-1A and then summarized.
2. Flow rates (Q_{20} and Q_{100}) calculated by corresponding intensity multiplied by area.

As shown on **Tables 1** and **2**, the 59 Commerce Drive site post-project conditions increase the 20-year peak flow from 1.51 to 1.85 cfs, and also increase the 100-year peak flow from 2.43 cfs to 2.94 cfs. Onsite storage, and related reductions to peak flows are discussed later in this document. The 264 Commerce site is already fully improved with no change in impervious areas, and as such, has no change for peak flows between existing and post-project conditions.

2.1. 59 Commerce Site – Stormwater storage and infiltration

The Town of Mammoth Lakes (TOML) requires new development to provide onsite stormwater storage to contain the equivalent of the 20-year design storm event for a duration of 1-hour, or approximately 1-inch of precipitation for the onsite drainage areas. This required onsite storage volume is summarized in **Table 3** below.

Table 3 – Required Onsite Storage Volume

Drainage Area	Area (Ac)	"C" Factor	1-inch (ft)	Storage Req'd (cf)
59 Commerce				
A	0.26	0.9	0.083	849
B	0.28	0.9	0.083	915
C	0.43	0.9	0.083	1,405
D	0.68	0.9	0.083	2,222
			Total	**5,390**
264 Commerce	0.51	0.87	0.083	1,730

Preliminary hydrology design for includes a combination underground storage and infiltration systems to meet the TOML requirements. Two preliminary designs are shown to provide flexibility in regards to construction, in either case, the required storage requirements are met. One design is a chambered system consisting of pre-fabricated corrugated arch chambers, placed on and surrounded by well graded rock reflects, see **Table 4a**. This includes an initial settling inlet filter followed by the sub-surface chamber system. This type of system meets the TOML design standards, however, given the location of the site and proximity to these custom materials, an additional option has been shown.

The second option also provides underground storage, through the use of large diameter (36") perforated pipes over graded round stone, see **Table 4b**. The length of pipe varies based on the related drainage area and volume required. Diameter of pipe is constant and would similarly use an initial settling inlet filter prior to the underground detention/infiltration pipe system. It is anticipated that this system will be the most cost-effective and likely final design for this site.

Table 4a – Underground Detention and Infiltration – Chambered System

Drainage Area ID	Area (ac)	Volume Req'd (cf)[1]	Volume Provided (cf)	Length (ft)	Width (ft)
A	0.26	849	919	35	9
B	0.28	915	919	35	9
C	0.43	1,405	1,515	56	9
D	0.68	2,222	2,230	46	15
Totals		**5,391**	**5,583**		

Notes: 1. Volume required per **Table 3.**

Table 4b – Underground Detention and Infiltration – Perforated Pipe System (36" Dia.)

Drainage Area ID	Volume Req'd (cf)	Volume Provided (cf)	Pipe Length per row	Qty of Pipes	Pipe Volume (cf)	W (ft)	D (ft)	Stone Void Volume (cf)
A	849	851	24	2	339	9	7.5	512
B	915	969	26	2	367	9	8	602
C	1,405	1,412	26	3	551	13	8	861
D	2,222	2,390	44	3	933	13	8	1,457
Totals	**5,391**	**5,623**						

As shown, either underground system assessed will provide the required storage volume. Dimensions shown are preliminary and may change during final design, provided that the final design volume provides meets or exceeds the volume required.

2.2. 264 Commerce Drive – Stormwater storage and infiltration

264 Commerce Drive includes two existing drywells as shown on the as-built drawings shown on **Attachment A**. The existing drywells are both constructed with a 36" diameter riser and 3-6" diameter rock cobble (40% voids estimated) that provides a calculated volume of 1,300 cf (see **Table 5**). An additional 430 cf of storage will be required to be provided to meet the current TOML requirements. Conceptual design for the increased volume includes the lateral expansion of the existing drywell by 9 feet as referenced in **Table 5** and shown in **Attachment A**. In addition to the additional drywell storage capacity, the inlet is recommended to modify with an inlet filter screen to minimize deposits to the drywell system.

Table 5 – Drywells, 264 Commerce Drive

Drywall	Length (ft)	Width (ft)	Depth (ft)	Gross Vol. (cf)	Porosity	Vol. Provided (cf)
1	15	13	10	1,950	0.4	780
2	13	10	10	1,300	0.4	520
					Sub-total Existing Volume Provided	**1,300**
Add'l Volume	9	13	10	1,170	0.4	468
					Total Volume Provided	**1,768**

Notes:
1. Depth shown is from the invert elevation to the bottom of the drywell shown on the as-built drawings and does not include the additional depth (approximately 2 feet) from top of grate or the inflowing pipes to the drywell.
2. Gross Volume is the overall length * width * depth. "Volume provided" accounts for the porosity within the rock/cobble used at the drywells.

It is noted that the existing facility stormwater improvements include a slotted drain at the front of the building that connects to an oil-water separator and continues to the Mammoth Lakes Community Water District sewer lateral. As part of this project, this connection to the sewer lateral will be eliminated and re-directed to the drywell and infiltration system.

2.3. Summary of Peak Flows and Storage

A comparison of the peak flows associates with both existing and developed conditions for the two sites is shown on Table 6 on the following page. The comparison includes existing conditions, developed (without storage) conditions, and developed (with storage) conditions.

Table 6 – Peak Flow Summary

	20-Year Event		**100-Year Event**	
	59 Comm	264 Comm	59 Comm	264 Comm
Area (ac)	1.64	0.55	1.64	0.55
Existing Conditions (cfs)	1.51	0.64	2.43	0.64
Developed Conditions (cfs)	1.85	0.64	2.94	0.64
Storage Volume (cf)	5,623	1,730	5,623	1,730
Storage Volume Equivalent cfs	-1.56	-0.48	-1.56	-0.48
Developed w/ Storage (cfs)	**0.29**	**0.16**	**1.38**	**0.16**
Difference (cfs) [Existing less Developed]	**-1.22**	**-0.48**	**-1.05**	**-0.48**

Notes:
1. Storage volume based on required quantity shown on Table 3.
2. Storage volume equivalent based on a one-hour duration where storage volume (cf) / 60 min / 60 sec = [equivalent] cfs

As shown in **Table 6**, the Developed with Storage peak flows are reduced below existing conditions for both the 20-year and 100-year storm events.

ATTACHMENT A

264 COMMERCE DRIVE
AS-BUILT DRAWINGS
TRIAD ENGINEERING, 1993

SITEWORK SPECIFICATIONS

1. ALL GRADING WILL BE PERFORMED IN ACCORDANCE WITH THE TOWN OF MAMMOTH LAKES ORDINANCES AND STANDARDS.

2. SUBGRADE IN AREAS TO BE PAVED WILL BE SCARIFIED, MOISTENED, AND COMPACTED TO A MINIMUM OF 95% OF THE MATERIALS MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-1557-78 FOR THE UPPER 12 INCHES.

3. ONE SET OF SURVEY STAKES WILL BE PROVIDED FOR EACH PHASE OF THE WORK. CONTRACTOR WILL BE RESPONSIBLE FOR AND BEAR THE COST OF RESETTING STAKES DESTROYED BY HIS OPERATIONS.

4. GRADING OPERATIONS WILL BE CONDUCTED IN ACCORDANCE WITH THE CONSTRUCTION SAFETY ORDERS OF THE STATE OF CALIFORNIA, DEPARTMENT OF INDUSTRIAL RELATIONS, DIVISION OF INDUSTRIAL SAFETY. IN ADDITION, ALL REQUIREMENTS OF GENERAL OSHA STANDARDS FOR THE PROTECTION OF WORKMEN AND THE GENERAL PUBLIC WILL BE COMPLIED WITH.

5. ALL MEASURES NECESSARY TO CONTROL DUST IN CONSTRUCTION AREAS OR ON ACCESS ROADS WILL BE TAKEN. SUFFICIENT WATER TRUCKS WILL BE MADE AVAILABLE FOR DUST CONTROL PURPOSES. ALL EXPOSED SOIL SURFACES WILL BE MOISTENED AS REQUIRED TO AVOID NUISANCE CONDITIONS AND INCONVENIENCES FOR LOCAL RESIDENTS AND TRAVELERS OF NEARBY ROADWAYS.

6. ASPHALT CONCRETE WILL BE TYPE B, 3/4-INCH MAXIMUM GRADING AND WILL CONFORM TO THE PROVISIONS IN SECTION 39, "ASPHALT CONCRETE", OF THE CALTRANS STANDARD SPECIFICATIONS AND THE REQUIREMENTS OF MONO COUNTY.

   TACK COAT BETWEEN PAVEMENT LIFTS (0.20' MAX. LIFT) APPLIED AT 0.10 GAL./SQ. YD. AND A SEAL COAT APPLIED AT 0.05 TO 0.15 GAL./SQ. YD. OF SS-1 OR CSS-1 WILL BE APPLIED TO ALL ASPHALT CONCRETE PAVING IN ACCORDANCE WITH SECTION 94, "ASPHALTIC EMULSIONS", OF THE CALTRANS STANDARD SPECIFICATIONS.

7. AGGREGATE BASE WILL BE CLASS II, 3/4-INCH MAXIMUM GRADING, AND SHALL CONFORM TO THE PROVISIONS OF SECTION 26, "AGGREGATE BASES", OF THE CALTRANS STANDARD SPECIFICATIONS AND WILL BE COMPACTED TO A MINIMUM OF 95% OF THE MATERIALS MAXIMUM DRY DENSITY.

8. CONCRETE WILL BE CLASS A IN ACCORDANCE WITH SECTION 90, "PORTLAND CEMENT CONCRETE", OF THE CALTRANS STANDARD SPECIFICATIONS. CONCRETE WILL CONTAIN 4% TO 5% ENTRAINED AIR AND WILL BE SEALED WITH SILICONE BASED SEALER, ("SYNAK" OR APPROVED EQUAL), IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

9. THE FOLLOWING COMPANIES/AGENCIES WILL BE NOTIFIED AT LEAST 48 HOURS IN ADVANCE FOR REQUESTING SERVICE/INSPECTION:

CONSTRUCTION STAKING:	INSPECTION:	SOILS TESTING:
TRIAD ENGINEERING CORP.	TOWN OF MAMMOTH LAKES	SIERRA GEOTECHNICAL
(619) 934-7588	(619) 934-8983	(619) 934-3992

   SHOULD ANY COMPACTION TEST FAIL TO MEET THE MINIMUM REQUIRED DENSITY AS SPECIFIED THE CONTRACTOR WILL CORRECT THE DEFICIENCY AT HIS EXPENSE TO THE SATISFACTION OF THE SOILS ENGINEER. THE EXPENSE OF RETESTING WILL BE BORNE BY THE CONTRACTOR, AT NO COST TO THE OWNER.

10. CALL U.S.A. ALERT AT (800) 642-2444 A MINIMUM OF 48 HOURS BEFORE STARTING WORK. VERIFY THE EXACT LOCATION AND DEPTH OF ALL UTILITIES BEFORE CONSTRUCTION.

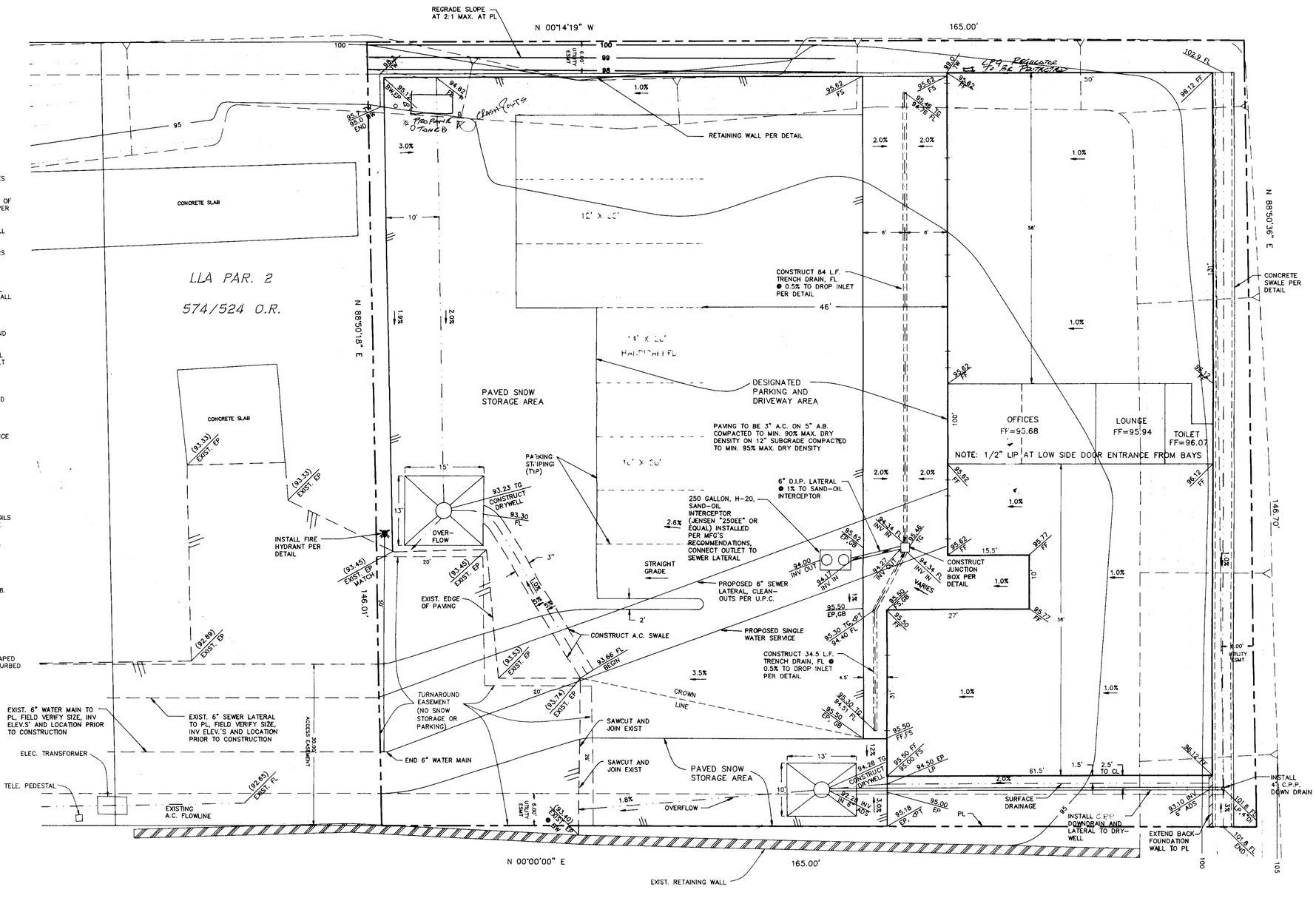
11. GROUND IN AREAS TO RECIEVE FILL WILL BE SCARIFIED TO A DEPTH OF 12", MOISTENED AND COMPACTED TO A MINIMUM OF 90% OF THE MATERIALS MAXIMUM DRY DENSITY. FILL MATERIALS WILL BE PLACED IN 6-INCH MAXIMUM LIFTS AT OPTIMUM MOISTURE CONTENT AND COMPACTED TO A MINIMUM OF 90% OF THE MATERIALS MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-1557-78.

12. EARTH MATERIAL EXCAVATED ON THE PROPERTY MAY BE USED FOR FILL, PROVIDED IT HAS BEEN DETERMINED SUITABLE BY THE GEOTECHNICAL ENGINEER. FILL WILL BE FREE OF ORGANIC AND OTHER DELETERIOUS MATERIAL. SOILS OF POOR GRADATION, EXPANSION POTENTIAL, OR STRENGTH CHARACTERISTICS WILL BE PLACED IN AREAS DESIGNATED BY THE CONSULTANT OR MIXED WITH OTHER SOILS TO SERVE AS SATISFACTORY SOIL MATERIAL.

13. NO AREAS WILL BE LEFT SUCH THAT A PONDING CONDITION OCCURS.

14. PROPOSED CUT AND/OR FILL SLOPES WILL NOT EXCEED A STEEPNESS OF 2:1 AND WILL BE LANDSCAPED OR REVEGETATED TO CONTROL EROSION. TOPSOIL WILL BE SPREAD EVENLY OVER SLOPES AND DISTURBED AREAS TO BE REVEGETATED, THEN SEED WILL BE BROADCASTED WITH THE FOLLOWING MIXTURE:

LUPIN	● 10 lb/ac
FESCUE GRASS	● 15 lb/ac
SAGEBRUSH	● 5 lb/ac
BITTERBRUSH	● 5 lb/ac



LEGEND

FS	FINISH SURFACE	EP	EDGE OF PAVEMENT
FG	FINISH GRADE	LP	LOW POINT
FF	FINISH FLOOR	<PT	ANGLE POINT
R	RADIUS	HP	HIGH POINT
FL	FLOWLINE	PL	PROPERTY LINE
DI	DROP INLET	CSP	CORRUGATED STEEL PIPE
TG	TOP OF GRATE		

FLOWLINE

95 EXISTING CONTOUR ELEVATION

SCALE: 1' = 10'

SUBMITTED BY:

THOMAS PLATZ DATE
R.C.E. 41039 EXP. 3-31-95

APPROVED BY:
MAMMOTH LAKES FIRE DEPT.

MARSHALL LARSON DATE

APPROVED BY:
TOWN OF MAMMOTH LAKES
DEPT. OF PUBLIC WORKS

ROBERT WARREN DATE
R.C.E. 29814 EXP. 3-31-95

REVISIONS	BY

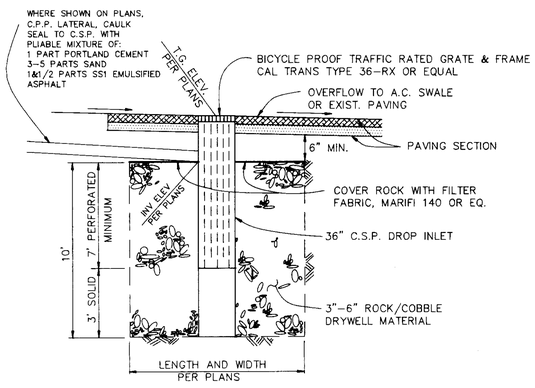
GRADING PLAN

MAMMOTH DISPOSAL

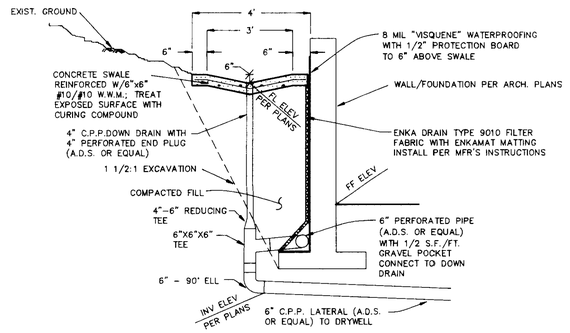
L.L.A. ADJUSTMENT PARCEL 1 PER 574/523 O.R. (BEING A PORTION OF LOT 15, INDUSTRIAL PARK)

TRIAD ENGINEERING
CIVIL ENGINEERING
SURVEYING
PUBLIC WORKS
LAND DEVELOPMENT
P.O. BOX 1570
MAMMOTH LAKES, CA. 93546
(619) 934-7588

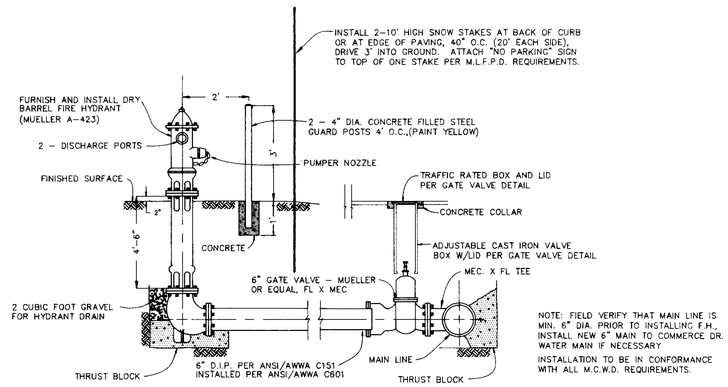
DATE	8-10-93
SCALE	1" = 10'
DRAWN	C.F.
JOB NO.	870.3
DWG	870\RECYCG1
SHEET	1
OF	2 SHEETS



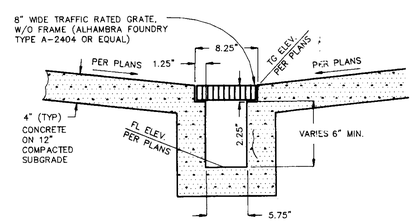
DRYWELL DETAIL
N.T.S.



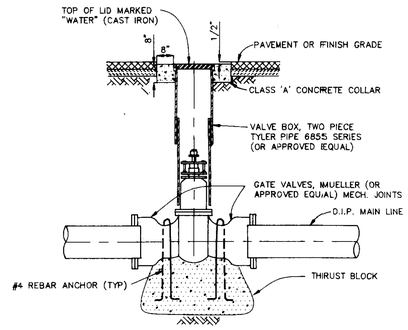
CONCRETE SWALE DETAIL
N.T.S.



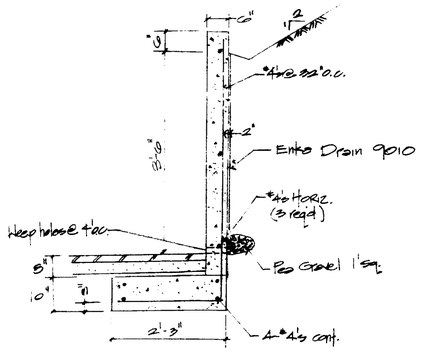
FIRE HYDRANT INSTALLATION DETAIL
N.T.S.



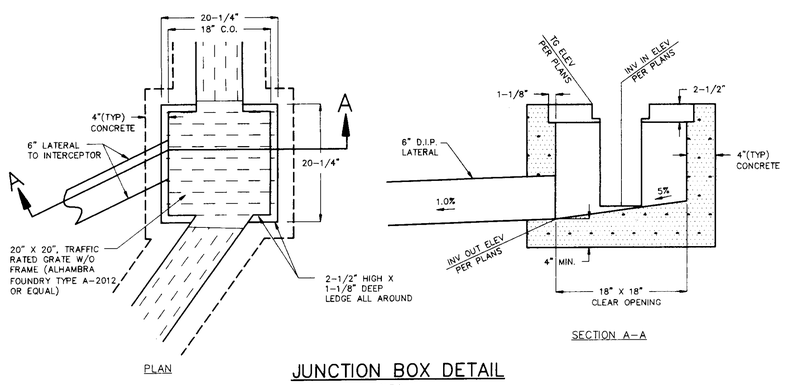
TRENCH DRAIN DETAIL
N.T.S.



GATE VALVE DETAIL
N.T.S.



RETAINING WALL DETAIL
Notes: 1. Concrete f'_c = 2000 psi
Steel f_y = 40000 psi



JUNCTION BOX DETAIL
N.T.S.

SUBMITTED BY:	APPROVED BY: MAMMOTH LAKES FIRE DEPT.
	MARSHALL LARSON DATE
THOMAS PLATZ DATE R.C.E. 41039 EXP. 3-31-95	APPROVED BY: TOWN OF MAMMOTH LAKES DEPT. OF PUBLIC WORKS ROBERT WARREN DATE R.C.E. 29814 EXP. 3-31-95

REVISIONS	BY

DETAIL SHEET

MAMMOTH DISPOSAL

L.L.A. ADJUSTMENT PARCEL 1 PER 574/523 O.R. (BEING A PORTION OF LOT 15, INDUSTRIAL PARK)

TRIAD ENGINEERING
CIVIL ENGINEERING
SURVEYING
SUBDIVISION WORKS
LAND DEVELOPMENT
P.O. box 1570
Mammoth Lakes, ca. 93546
(619) 934-7588

DATE	8-10-93
SCALE	NONE
DRAWN	C.F.
JOB NO.	870.3
DWG	870\RECYCG2
SHEET	2
OF	2 SHEETS

264 COMMERCE DRIVE AS-BUILT EXHIBIT WITH CONCEPTUAL DRYWELL AREA EXPANSION

SITEWORK SPECIFICATIONS

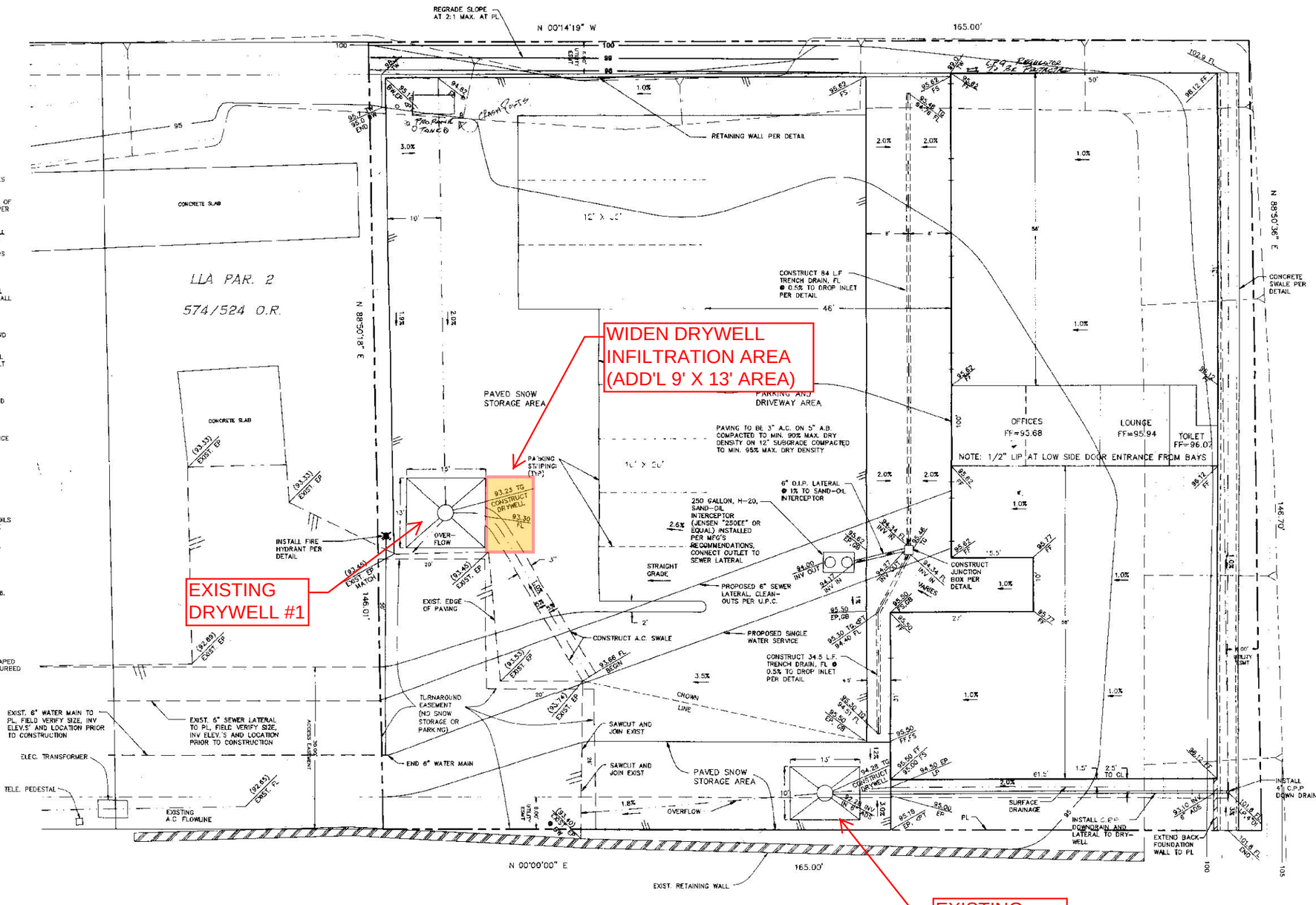
1. ALL GRADING WILL BE PERFORMED IN ACCORDANCE WITH THE TOWN OF MAMMOTH LAKES ORDINANCES AND STANDARDS.
2. SUBGRADE IN AREAS TO BE PAVED WILL BE SCARIFIED, MOISTENED, AND COMPACTED TO A MINIMUM OF 95% OF THE MATERIALS MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-1557-78 FOR THE UPPER 12 INCHES.
3. ONE SET OF SURVEY STAKES WILL BE PROVIDED FOR EACH PHASE OF THE WORK. CONTRACTOR WILL BE RESPONSIBLE FOR AND BEAR THE COST OF RESETTING STAKES DESTROYED BY HIS OPERATIONS.
4. GRADING OPERATIONS WILL BE CONDUCTED IN ACCORDANCE WITH THE CONSTRUCTION SAFETY ORDERS OF THE STATE OF CALIFORNIA, DEPARTMENT OF INDUSTRIAL RELATIONS, DIVISION OF INDUSTRIAL SAFETY. IN ADDITION, ALL REQUIREMENTS OF GENERAL OSHA STANDARDS FOR THE PROTECTION OF WORKMEN AND THE GENERAL PUBLIC WILL BE COMPLIED WITH.
5. ALL MEASURES NECESSARY TO CONTROL DUST IN CONSTRUCTION AREAS OR ON ACCESS ROADS WILL BE TAKEN. SUFFICIENT WATER TRUCKS WILL BE MADE AVAILABLE FOR DUST CONTROL PURPOSES. ALL EXPOSED SOIL SURFACES WILL BE MOISTENED AS REQUIRED TO AVOID NUISANCE CONDITIONS AND INCONVENIENCES FOR LOCAL RESIDENTS AND TRAVELERS OF NEARBY ROADWAYS.
6. ASPHALT CONCRETE WILL BE TYPE B, 3/4-INCH MAXIMUM GRADING AND WILL CONFORM TO THE PROVISIONS IN SECTION 39, "ASPHALT CONCRETE", OF THE CALTRANS STANDARD SPECIFICATIONS AND THE REQUIREMENTS OF MONO COUNTY.

   TACK COAT BETWEEN PAVEMENT LIFTS (0.20' MAX. LIFT) APPLIED AT 0.10 GAL./SQ. YD. AND A SEAL COAT APPLIED AT 0.05 TO 0.15 GAL./SQ. YD. OF SS-1 OR CSS-1 WILL BE APPLIED TO ALL ASPHALT CONCRETE PAVING IN ACCORDANCE WITH SECTION 94, "ASPHALTIC EMULSIONS", OF THE CALTRANS STANDARD SPECIFICATIONS.
7. AGGREGATE BASE WILL BE CLASS II, 3/4-INCH MAXIMUM GRADING, AND SHALL CONFORM TO THE PROVISIONS OF SECTION 26, "AGGREGATE BASES", OF THE CALTRANS STANDARD SPECIFICATIONS AND WILL BE COMPACTED TO A MINIMUM OF 95% OF THE MATERIALS MAXIMUM DRY DENSITY.
8. CONCRETE WILL BE CLASS A IN ACCORDANCE WITH SECTION 90, "PORTLAND CEMENT CONCRETE", OF THE CALTRANS STANDARD SPECIFICATIONS. CONCRETE WILL CONTAIN 4.5 TO 6.5% ENTRAINED AIR AND WILL BE SEALED WITH SILICONE BASED SEALER, ("SYNAK" OR APPROVED EQUAL), IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
9. THE FOLLOWING COMPANIES/AGENCIES WILL BE NOTIFIED AT LEAST 48 HOURS IN ADVANCE FOR REQUESTING SERVICE/INSPECTION:

CONSTRUCTION STAKING:	INSPECTION:	SOILS TESTING:
TRIAD ENGINEERING CORP. (619) 934-7588	TOWN OF MAMMOTH LAKES (619) 934-8983	SIERRA GEOTECHNICAL (619) 934-3992

   SHOULD ANY COMPACTION TEST FAIL TO MEET THE MINIMUM REQUIRED DENSITY AS SPECIFIED THE CONTRACTOR WILL CORRECT THE DEFICIENCY AT HIS EXPENSE TO THE SATISFACTION OF THE SOILS ENGINEER. THE EXPENSE OF RETESTING WILL BE BORNE BY THE CONTRACTOR, AT NO COST TO THE OWNER.
10. CALL U.S.A. ALERT AT (800) 642-2444 A MINIMUM OF 48 HOURS BEFORE STARTING WORK. VERIFY THE EXACT LOCATION AND DEPTH OF ALL UTILITIES BEFORE CONSTRUCTION.
11. GROUND IN AREAS TO RECEIVE FILL WILL BE SCARIFIED TO A DEPTH OF 12", MOISTENED AND COMPACTED TO A MINIMUM OF 90% OF THE MATERIALS MAXIMUM DRY DENSITY. FILL MATERIALS WILL BE PLACED IN 8 INCH MAXIMUM LIFTS AT OPTIMUM MOISTURE CONTENT AND COMPACTED TO A MINIMUM OF 90% OF THE MATERIALS MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-1557-78.
12. EARTH MATERIAL EXCAVATED ON THE PROPERTY MAY BE USED FOR FILL, PROVIDED IT HAS BEEN DETERMINED SUITABLE BY THE GEOTECHNICAL ENGINEER. FILL WILL BE FREE OF ORGANIC AND OTHER DELETERIOUS MATERIAL. SOILS OF POOR GRADATION, EXPANSION POTENTIAL, OR STRENGTH CHARACTERISTICS WILL BE PLACED IN AREAS DESIGNATED BY THE CONSULTANT OR MIXED WITH OTHER SOILS TO SERVE AS SATISFACTORY SOIL MATERIAL.
13. NO AREAS WILL BE LEFT SUCH THAT A PONDING CONDITION OCCURS.
14. PROPOSED CUT AND/OR FILL SLOPES WILL NOT EXCEED A STEEPNESS OF 2:1 AND WILL BE LANDSCAPED OR REVEGETATED TO CONTROL EROSION. TOPSOIL WILL BE SPREAD EVENLY OVER SLOPES AND DISTURBED AREAS TO BE REVEGETATED, THEN SEED WILL BE BROADCASTED WITH THE FOLLOWING MIXTURE:

LUPIN	@ 10 lb/ac
FESCUE GRASS	@ 15 lb/ac
SAGEBRUSH	@ .5 lb/ac
BITTERBRUSH	@ .5 lb/ac



LEGEND

FS	FINISH SURFACE	EP	EDGE OF PAVEMENT
FG	FINISH GRADE	LP	LOW POINT
FF	FINISH FLOOR	<PT	ANGLE POINT
R	RADIUS	HP	HIGH POINT
FL	FLOWLINE	PL	PROPERTY LINE
DI	DROP INLET	CSP	CORRUGATED STEEL PIPE
TG	TOP OF GRATE		

FLOWLINE

EXISTING CONTOUR ELEVATION

SCALE: 1' = 10'

APPROVED BY:
MAMMOTH LAKES FIRE DEPT.

MARSHALL LARSON DATE

SUBMITTED BY:

THOMAS PLATZ DATE
R.C.E. 41039 EXP. 3-31-95

APPROVED BY:
TOWN OF MAMMOTH LAKES
DEPT. OF PUBLIC WORKS

ROBERT WARREN DATE
R.C.E. 29814 EXP. 3-31-95

REVISIONS	BY

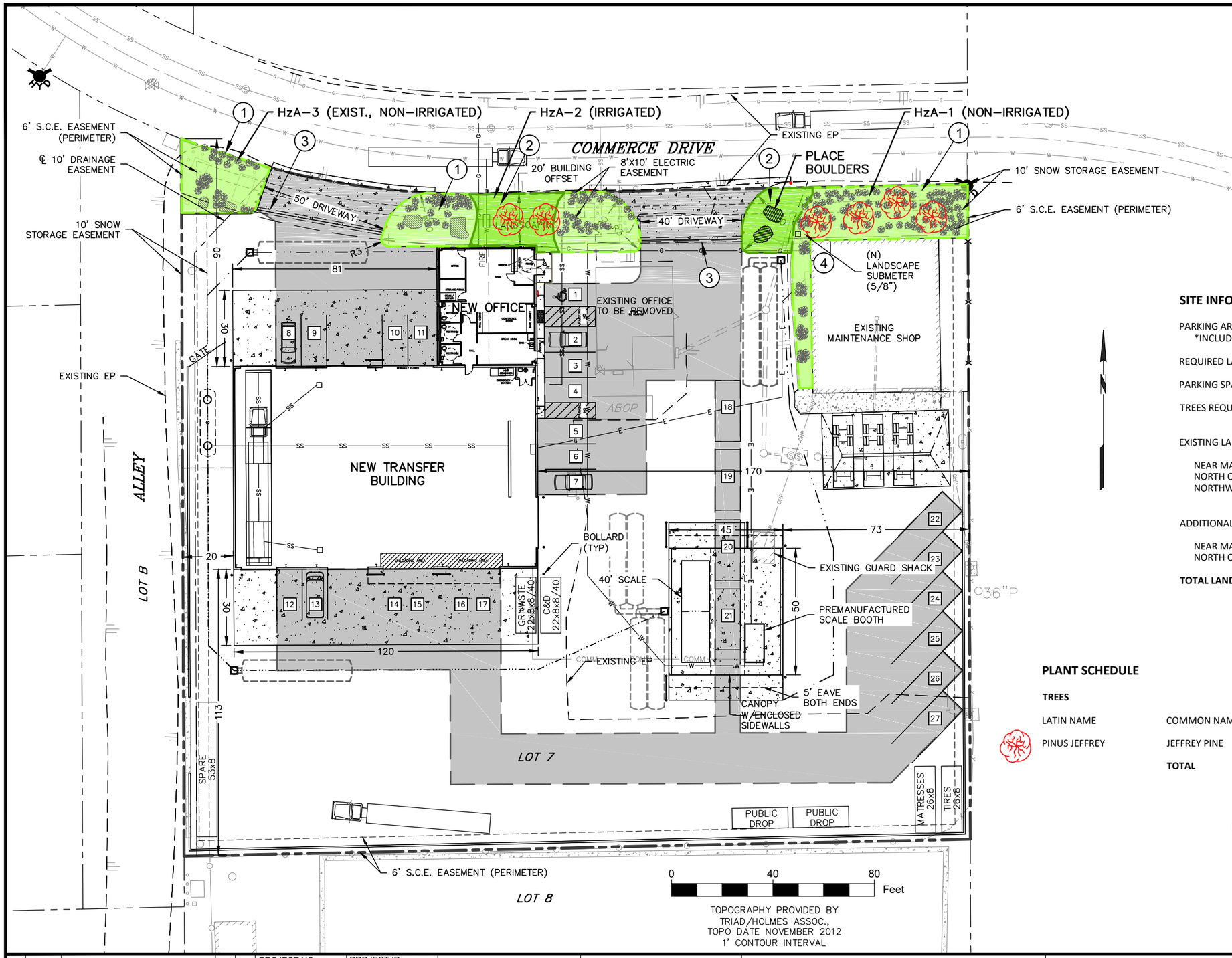
GRADING PLAN

MAMMOTH DISPOSAL

L.L.A. ADJUSTMENT PARCEL 1 PER 574/523 O.R. (BEING A PORTION OF LOT 15, INDUSTRIAL PARK)

TRIAD ENGINEERING
CIVIL ENGINEERING
SURVEYING
PUBLIC WORKS
LAND DEVELOPMENT
P.O. Box 1570
Mammoth Lakes, Ca. 93546
(619) 934-7588

DATE	8-10-93
SCALE	1" = 10'
DRAWN	C.F.
JOB NO.	870.3
DWG	870\RECYCG1
SHEET	1
OF	2 SHEETS



TOPOGRAPHY PROVIDED BY
TRIAD/HOLMES ASSOC.,
TOPO DATE NOVEMBER 2012
1' CONTOUR INTERVAL

LEGEND

SEE SHEET C2.0

- PROPERTY LINE
- EXISTING FENCE
- NEW CHAIN LINK FENCE
- NEW CMU BLOCK WALL
- 7698 EXISTING CONTOURS
- NEW CONCRETE
- PARKING AREA (FOR LANDSCAPE CALCULATION)
- EXISTING LANDSCAPE AREA
- ADDITIONAL OPEN SPACE
- PROPOSED TREES (SEE TABLE)
- EXISTING LANDSCAPING

SITE INFORMATION

PARKING AREA *INCLUDES DRIVE AISLE TO ACCESS PARKING STALLS	23,000 SF
REQUIRED LANDSCAPING (10% OF PARKING AREA)	2,300 SF
PARKING SPACES SHOWN	27 SPACES
TREES REQUIRED (1 PER 5 PARKING SPACES)	6 TREES
EXISTING LANDSCAPING AREAS (TO REMAIN)	
NEAR MAINTENANCE BUILDING	1,765 SF
NORTH OF NEW OFFICE	1,385 SF
NORTHWEST CORNER OF SITE	760 SF
	3,910 SF (170% OF REQ'D)
ADDITIONAL OPEN SPACE (NEW)	
NEAR MAINTENANCE BUILDING	530 SF
NORTH OF NEW OFFICE	680 SF
TOTAL LANDSCAPE AREA PROVIDED	5,120 SF (222% OF REQ'D)

PLANT SCHEDULE

TREES

LATIN NAME	COMMON NAME	CONTAINER SIZE (GAL)	QUANTITY	WATER USE	PLANT FACTOR
PINUS JEFFREY	JEFFREY PINE	10	6	LOW	0.2
	TOTAL	**10**	**6**		

(1) SHEET NOTES:
1. EXISTING LANDSCAPING IS ESTABLISHED AND NON–IRRIGATED. AN IRRIGATION METER IS BEING ADDED TO MEET THE TOML DESIGN GUIDELINES, HOWEVER, IRRIGATION WILL ONLY BE ADDED TO EXISTING LANDSCAPING ON AN AS–NEEDED BASIS.
2. NEW LANDSCAPED AREAS INCLUDE TREES AND LANDSCAPE BOULDERS AS SHOWN. NEW TREES SHALL BE IRRIGATED.
3. PLACE TWO 1–INCH SCH 40 PVC CONDUITS UNDER PAVING FOR IRRIGATION PURPOSES.
4. INSTALL NEW 5/8"IRRIGATION SUBMETER AT EXISTING WATER VALVE NEAR BUILDING.

NO.	DATE	REVISIONS	BY	CHK

PROJECT NO: 019029.00	PROJECT ID:
DRAWN BY: J. BEERS	SCALE: 1"=20'
ENGINEER: D. BROWN	DATE:
CHECKED BY: C. COLES	DATE:

ORIGINAL SCALE IN INCHES
0 1 2

LAWRENCE & ASSOCIATES
ENGINEERS & GEOLOGISTS

TRANSFER STATION

MAMMOTH DISPOSAL
59 COMMERCE DR.
MAMMOTH LAKES, CA

EROSION CONTROL AND LANDSCAPE PLAN

DRAFT

DRAWING: C7.0
SHEET: OF
DATE: 1/28/2021

P: \019029.00_mammoth \landscape2.dwg J.R.B. 1/28/2021