SALT LAKE COUNTY

GREATER SALT LAKE
Municipal Services District

Planning and Development Services
2001 S. State Street N3-600 • Salt Lake City, UT 84190-4050
Phone: (385) 468-6700 • Fax: (385) 468-6674
msd.utah.gov

File # REZ2022-000535

Zoning Map Amendment

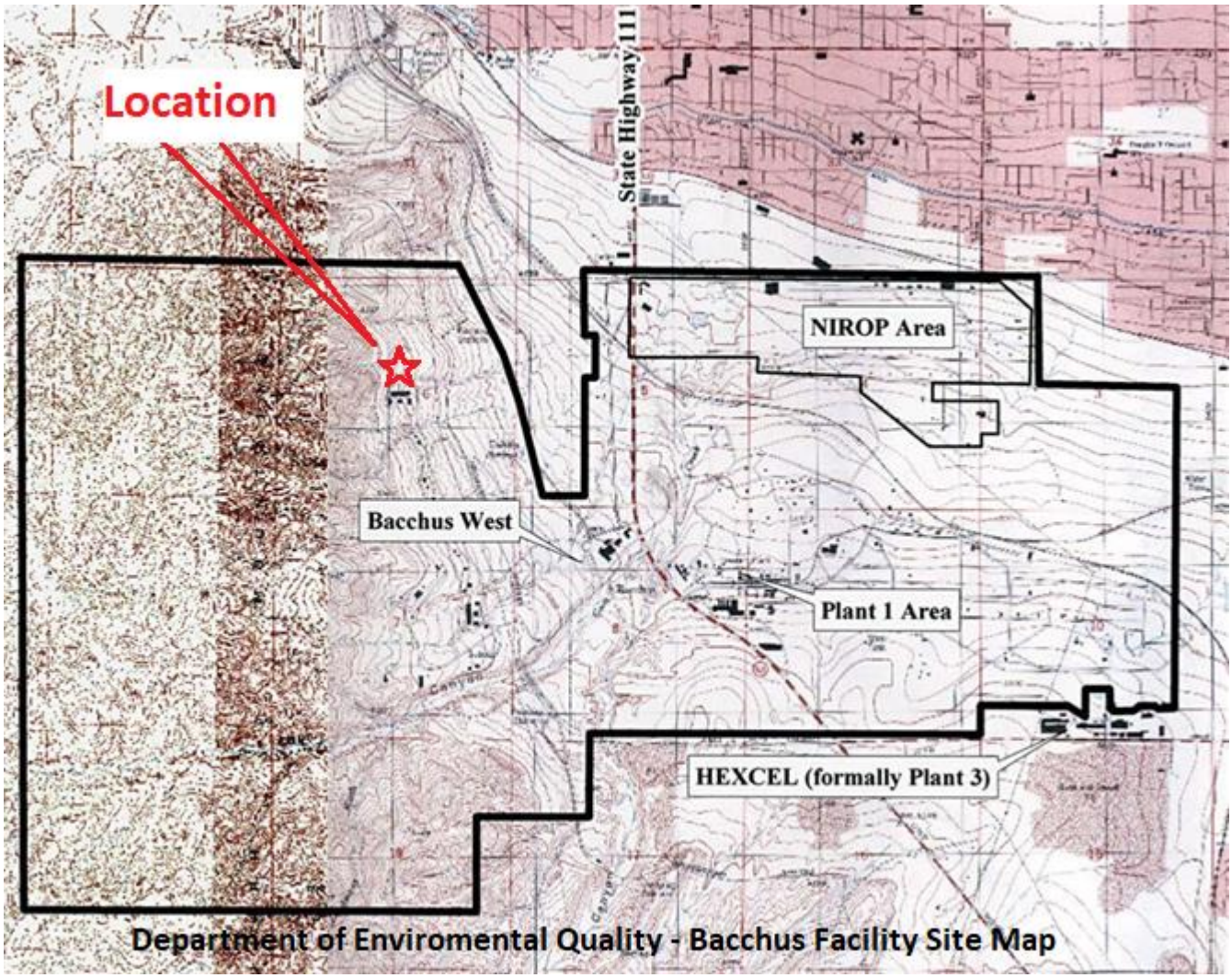
Public Body: Salt Lake County Council
Parcel ID: Portions of 20-06-100-001 and 20-06-200-001
Current Zone: A-20 (Agricultural Zone)
Property Address: 4098 South 8400 West (Legal Address) Approximately 4400 South 9200 West (Actual Location)
Request: Amend the Zoning Map from A-20 (Agricultural Zone) to M-2 (Manufacturing Zone) to allow the existing rocket motor manufacturing to expand on 35 acres. The area proposed for rezone includes the entire area to be disturbed.

Planner: Brian Tucker
Date of Report: April 15, 2022
Applicant Name: Northrop Grumman (Douglas Farley, Representative)

SITE & VICINITY DESCRIPTION

The project area is located about 0.7 miles south and west of the Magna Township Boundary and 2.5 miles south of Magna Main Street. The project is at the north end of an existing Northrop Grumman Plant and is an extension of the existing rocket motor assembly line. The legal address for this portion of the plant is 4098 West 8400 West, but the actual location is at approximately 4400 South and 9200 West. This existing plant is located to the west of the Northrop Grumman Facility, which was formerly known as the Hercules Bacchus Plant.

PROJECT BACKGROUND AND DESCRIPTION



Hercules, Inc. established the Bacchus Works in 1915 as a producer of commercial blasting powder. The plant was renovated into a modern solid rocket propulsion facility in 1958 with research, development, and production capability. In June 2018, Northrop Grumman Corporation acquired the Bacchus facility, which they operate under a subsidiary known as ATK Launch Systems.

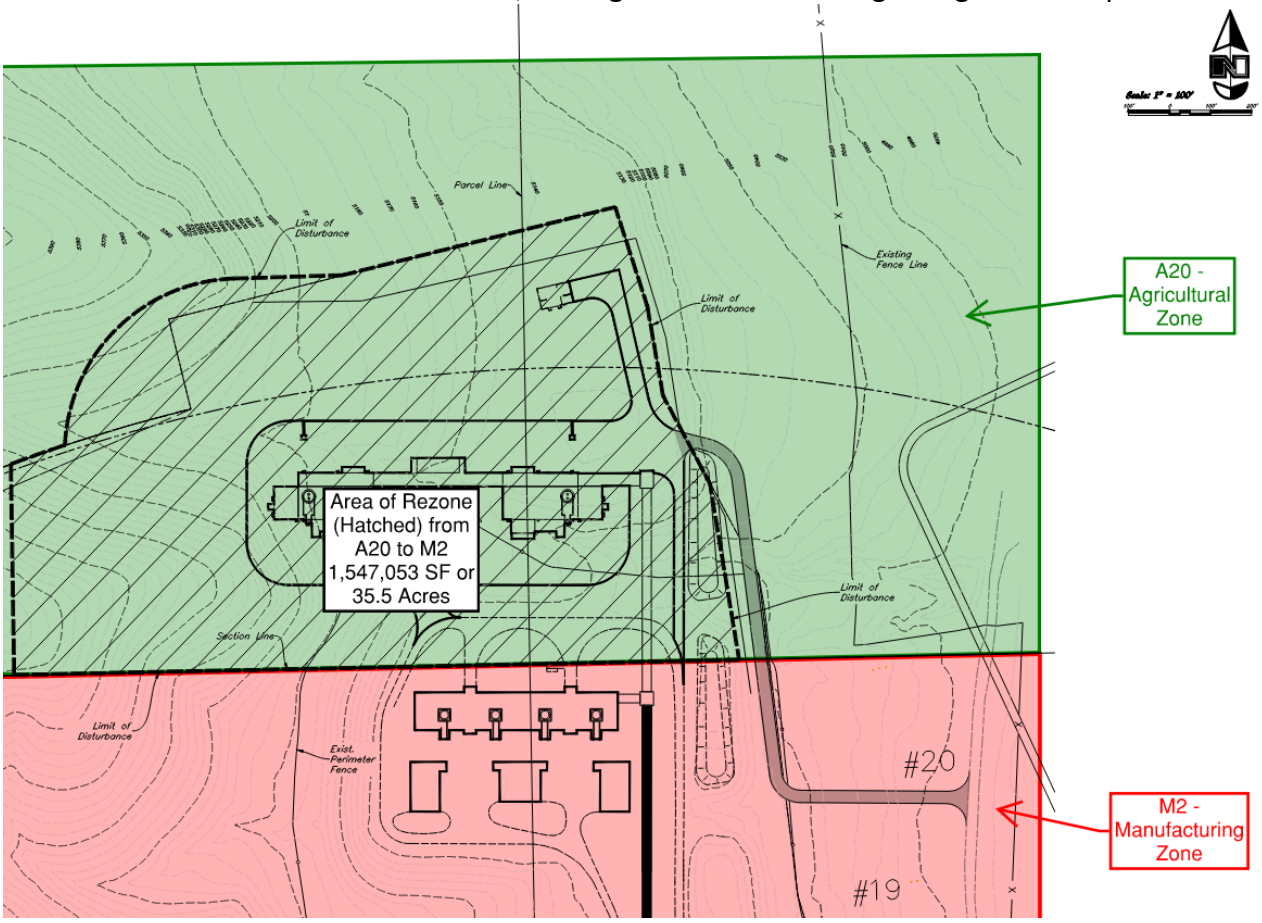
The Bacchus facility occupies about 10,000 acres within West Valley City and unincorporated Salt Lake County. The facility includes over 400 buildings that are used to produce and prepare propellant ingredients, manufacture solid propellants, and produce solid propellant rocket motors. It is located south of the Magna Township, about 18 miles southwest of Salt Lake City. Plant 1 (Bacchus East) and the

Naval Industrial Reserve Ordnance Plant (NIROP) are located in West Valley. Bacchus West straddles the boundary between West Valley City and unincorporated Salt Lake County, with most of the plant located to the south and west of Magna and in unincorporated Salt Lake County.

The facilities that comprise Bacchus are owned or leased, and are operated by ATK Launch Systems, a subsidiary of Northrop Grumman Innovation Systems. The NIROP facility is owned by the United States Navy and is operated by ATK Launch Systems as an integral part of the facility. Plant 1 and a portion of the Bacchus West facilities are owned by ATK Launch Systems. Much of the Bacchus West property is owned by and leased from the Kennecott Utah Copper Corporation.

PROPOSAL

Northrop Grumman is the only builder of a rocket motor of this type of product. Facing increased demand, they are looking to both upgrade the existing Bacchus facility and increase their production capacity by building additional buildings for storage and manufacturing. Some of these buildings will be in West Valley City but nine significant buildings are proposed in unincorporated Salt Lake County. Four of these buildings are located within the footprint of the current plant, but the remaining five are proposed for the area north of the existing assembly line as they are an addition to that assembly line. These five buildings are proposed to be in an area that is currently in the Agriculture Zone (A-20). Rocket motor manufacturing is not a use allowed in the A-20 zone. The existing plant is located in the Manufacturing (M-2) Zone. The applicant is requesting the same Manufacturing (M-2) Zone for the proposed rezone area. The proposed rezone area is 35 acres, an area that includes all five of the buildings as well as the entire area to be disturbed, as a significant amount of grading will be required.



The requested rezone would allow Northrop Grumman to expand the capacity of the existing rocket motor facility along the west bench. The expanded plant would continue to produce the same rocket motors as the existing plant but with expanded capacity.

Northrop Grumman has chosen this location in the Bacchus West portion of the plant, north of the existing production line, primarily due to the existing manufacturing capabilities for the type of rocket motor they plan to manufacture there. The company has evaluated placing the additional capacity in the Plant 1 area of the facility east of Bacchus Highway and at other locations, both in-state and out-of-state. The reason this location has been chosen is that the company is looking to expand its existing operation rather than create a new operation. Other locations lack what the existing operation has in equipment, buildings and a trained and experience work force that would be difficult and costly to replicate elsewhere.

Locating the new facilities in the Plant 1 area of the Bacchus facility would preserve the existing trained and experienced work force, but it does not benefit from the existing capacity and its automated manufacturing and ingredient transport systems that already exist at the proposed location. Locating the new capabilities in the Plant 1 area requires significantly more infrastructure and would likely have to be located closer to residential areas than the proposed site. It would also increase risk related to operations given that Northrup Grumman would need to transport live energetic product from the existing Bacchus West location across the Bacchus Highway and through the plant. This not only increases the risk to the public, but the increased distance allows the product to set up in the transport before it has an opportunity to be cast.

The area west of the existing manufacturing line is too steep, would require that more area be disturbed, and would be much more costly due to the requirement to lift ingredients and motor components up the side of the mountain. The area to the east of the existing line is encumbered by a slurry line owned by Kennecott and is the future location of road and trail facilities identified by the 2022 Draft West General Plan. The area south of the existing plant is at the wrong end of the manufacturing line and would create access problems due to the location of Coon Canyon Road. As a result, Northrop Grumman has determined that the best location for the added capacity is at the north end of the existing facility as it can be located at the same elevation as the existing mix/cast facilities and utilize the existing automated transport facilities. According to Northrop Grumman, this location offers the best solution for transferring propellant from a mixing facility to a casting facility.

The five significant buildings within the proposed rezone area will be used for the casting of the liquid fuels into the rocket casings and cured into the solid fuel rocket motors that are the product of this plant. This work is done in two casting/curing buildings to accommodate tipping the unfilled rocket motor on end, in an 80’ deep pit, for fuel to be cast. The fuel then cures into a rubber like state. After curing, the motor is then transported to the Finishing building, located within the West Valley City portion of the plant. The Propellent Manufacturing Control House is the location where the employees control the work in the casting/curing buildings. The Core Storage Building and Boiler House are part of the casting/curing operations. While the Bacchus Facility does produce rocket motors with highly explosive fuels, the motors that will be manufactured in the area proposed to be rezoned use a much less explosive fuel than the fuel the overpressure zone is based on. Consequently, expansion of the existing plant operations and manufacturing line to the north, into the area proposed to be rezoned will not necessitate amending the overpressure zone. The overpressure zone can be found in Salt Lake County

Code Chapter 15.14 and addresses the risk of accidental explosion. No intentional explosions will take place in the area that is proposed to be rezoned.

The Planning Commission has made a recommendation to approve the rezone to the County Council, the decision-making body for zoning amendments. If the rezone request is approved by the County Council, the applicant will then need to pursue a conditional use permit for approval of the use and site plan.

PLANNING STAFF ANALYSIS

General Plan:
The 2007 Draft West Bench General Plan was not adopted, and it is not clear that any other general plan covers this area. The MSD and Salt Lake County are nearing the end of a process to adopt a Salt Lake County West General Plan. The Draft Salt Lake County West General Plan has some proposed land use, transportation and preservation policies and goals that have implications in the project area.

The proposed future land use map identifies the project area as appropriate for Master Planned Communities with densities of 4-6 units per acre. Two aspects of this are important to note, first that this is only a draft plan; and second, these areas are identified for "*Limited Development Until Post Mine Closure (2040+)*". Furthermore, the nearest residentially zoned area is approximately 3/4 of a mile away, in an area more suited to development than the hillside area in question. Rio Tinto Kennecott is the owner of the land now and likely will be in 2040 and beyond. They have granted Northrop Grumman permission to make this application. Future residential use of the Oquirrh foothills is a long-term possibility rather than a near term certainty as long as the mining and other industrial uses that characterize this portion of the county remain viable.

A future "Oquirrh Blvd" is on the current 2019-2050 Regional Transportation Plan (RTP) adopted by the Wasatch Front Regional Council. This future road is located to the east at a lower elevation than the existing Northrop Grumman assembly line and the proposed extension of the assembly line. The proposed Bonneville Shoreline Trail alignment is also located to the east and at a lower elevation than the rezone area. As a result, no transportation issues identified by the draft plan are expected to be affected by the proposed rezone.

One of the most important conservation topics identified by the draft West General Plan is watershed. The buffering of industrial uses from potential recreation uses and the ecological reclamation of current industrial and mining sites are also topics identified in the draft West General Plan. The buffering and reclamation issues are longer range concerns as the industrial and mining activities are ongoing, and residential and recreational uses are not currently present near the project area.

Zoning:
Northrop Grumman proposes to expand their operations on the property that is currently zoned A-20 (Agriculture Zone). The A-20 zone does not allow rocket motor manufacturing or anything that could in any way be construed to include rocket motor manufacturing. Most of the existing plant is zoned M-2, a zone that does not specifically include rocket motor manufacturing but does include "*manufacture, fabrication, assembly, compounding, packaging, processing, treatment, storage and maintenance of" "Airplanes and parts*", among other uses. This "*airplanes and parts*" manufacturing use is a permitted

use in the M-2 (but industrial developments over one acre are conditional uses). There is no other use that closely resembles what the applicants intend. When this is the case, Salt Lake County and its Planning Director are empowered to make an administrative determination for uses that are not listed but are of a similar nature to uses that are. There is very little historical information available about the initial permitting of the existing plant, but it was likely allowed through the conditional use process.

A rezone to M-2 is a necessity for the project to move forward and this is a legislative decision for the Salt Lake County Council. The Council's decision is the key decision for any expansion of the plant that includes the 35 acres proposed for rezone. An approval clears the way for the applicant to apply for land use permits and other regulatory permits. There are portions of the project that are within the footprint of the current plant and have the zoning necessary, though it is not clear if the project can be viable without a rezone that includes the 35 acres in question.

A rezone can include conditions, but those conditions are generally limited to the uses allowed in the zone and those pertaining to density, square footage, and height.

Conditional Use Permit Required:
If the rezone is approved, the applicant will then be required to apply for a conditional use permit for site plan approval of an industrial project over one acre. While there is a limit to the conditions that can be placed on a rezone, the conditions that can be placed on a conditional use permit are not so limited in scope. At the time of conditional use permit review, if a legitimate detrimental effect of the proposed land use can be identified, a reasonable condition can be imposed to mitigate that detrimental effect.

Overpressure Zone:
The existing overpressure areas were established based on a type of material used for a certain type of rocket. The overpressure areas are based on activities at specific locations within the Bacchus Plant that are used to produce rocket motors using materials that are designated as "*mass detonation hazards.*" These high hazard materials can cause an overpressure shock front and fragment generation. The rocket motors that Northrop Grumman is currently building (and will build) in Unincorporated Salt Lake County, including the rezone area, are of a different type that have been excluded from the "high hazard" definition because, while they are a significant fire hazard, they are only a minor blast hazard. These rocket motors use materials that are not a mass detonation hazard associated with overpressure and fragmentation. (See attachment #8, Bacchus Plant Overpressure Rings in relation to Proposed Energetic Facility Construction Memo)

Air Quality and other Environmental Impacts:
Air quality and other environmental concerns have been identified as potential detrimental effects both during a potential construction phase of the project and the longer-term operation of the plant.

The mass grading of any project, industrial or residential, carries with it concerns about air and water quality due to the movement of soils and removal of vegetative cover. Blowing winds, flowing water and the movement of machines can displace soils, causing air and water pollution. Storm Water Pollution Prevention Plans (SWPPP) and Fugitive Dust Control Plans are required by the State of Utah to ensure that the applicant uses best management practices to control air quality and water pollution that may result from construction activities. Penalties for violations of the plans can be imposed if these plans are

violated. These plans must be in place for the entirety of the construction portion of a project and in some instances are required for the life of the facility.

The Bacchus Facility has air quality, water quality, waste, and hazardous waste permits through the Utah Department of Environmental Quality (DEQ). DEQ monitors and licenses air and water quality as well as waste and hazardous waste. These existing permits will need to be amended with DEQ in conjunction with this project. The existing plant has a permit to store hazardous waste at three locations at its current plant, all three of which are located within the West Valley City portion of the plant. The Environmental Protection Agency and Federal Aviation Administration also regulate the aerospace industry.

Flood Control and Grading:
Several potential flood control and grading issues have been identified during the initial process of evaluating the proposed expansion.

The proposed plant will require nearly two (2) million cubic yards of cut and 75 thousand cubic yards of fill. The excess soil from the site grading of the current facility was stored within the project area. This soil will be removed, along with significant grading of the hillside. The project will require the removal of a portion of the hillside that at its greatest extent will result in an elevation change of nearly 160 feet. The resulting slope will have a 200-foot drop over a distance of 300 feet, resulting in a 33.69-degree slope. By way of comparison, this slope is the same as a roof pitch of 8/12. This finished grade is steeper than most of the existing hillside and will need to be re-vegetated to control erosion. The proposed storage area for the excess materiel is to the east of the existing manufacturing line. (See Attachment #7, Grading Plan)

The plant is proposed to be constructed across an ephemeral stream that will then need to be relocated, channelized, or piped. Additionally, the newly hardscaped ground and rooftops will create additional runoff that will need to be mitigated by on-site detention or by some other permitted means. A very preliminary discussion took place between Salt Lake County Flood Control, Salt Lake County Engineering, and the Metropolitan Service District Storm Water and Grading Divisions during the initial conversations about what information was needed to evaluate the proposed rezone. There are significant challenges; however, to date there is no indication that these potential impacts cannot be mitigated through the permitting process. These agencies will all be involved in permitting for any grading or construction that occurs within the existing plant and any expansion of the plant.

Permits such as Storm Water Pollution Prevention (SWPPP), Phase I and II Environmental Studies, Grading, Stream Alteration Permits, and potentially 404 permits from the Army Corps of Engineers may be required based on the extent and specifics of the project. These permits will rely on civil engineering drawings, including geotechnical studies and slope stability analyses. These permits and studies will be part of the land use permit and building permit activities.

Fire and Fire Code:
The rocket motors built in the existing facility are the same as those proposed for the expanded facility. While the rocket fuel is highly flammable, it is not a mass detonation hazard. Unified Fire Authority has not identified any special concerns and have indicated that they expect a typical permit review process.

Transportation:

Transportation access for this site is primarily 8400 West (S.R 111/Bacchus Highway). The route passes through the plant between the West Bacchus and Plant 1 areas. 4100 South and 5400 South are along the north and south plant boundaries and may provide additional access to the site. Finally, a railroad spur provides rail service to the Bacchus Plant.

Economic Development/New Jobs:
Northrop Grumman will invest $450 million dollars in expanding the existing manufacturing line. Northrop Grumman is the only manufacturer of this type of rocket motor and the demand for these motors has increased significantly. This additional manufacturing capability will allow the company to triple the number of rocket motors they are able to build. The construction efforts will utilize local firms and most of the $450 million dollars will be spent within the Salt Lake County and the State of Utah. When complete, the expanded and upgraded production line will create up to 400 new long-term, high-tech manufacturing jobs.

Community Concerns:
It is anticipated that there may be concerns from residents regarding a variety of issues, including traffic, dust, and noise pollution, together with the risk of explosions. There will likely be additional truck and even employee related traffic, the effects of which can be measured by requiring a traffic impact study. It could be expected that the noise and dust impacts of the proposed plant will be similar to existing impacts since the proposed uses are an extension of the existing activities. Dust from construction activities of the plant addition can be mitigated by SWPPP regulations and inspections, and noise can be mitigated by County Health department regulations and inspections. As the overpressure area will not need to be amended, concerns from residents and developers about the risk of explosions should not be an issue.

If the County rezones the property to make way for the project, the applicant still needs a conditional use permit. This conditional use permit can include conditions intended to mitigate legitimate detrimental effects identified by the public.

Notice:
Notice has been given in accordance with Utah Code 17-27a-205 and Salt Lake County Code 19.90.020. Notice was mailed to each affected entity and property owner at least 10 calendar days before the public hearing. Notice was posted on the County's official website, on the Utah Public Notice Website, and in three public locations at the Salt Lake County Government Center. Physical Notice was posted on the parcel in accordance with Salt Lake County Code 19.90.020.B. (See Attachment #10, Proof of Notice)

Review Procedure and Criteria:
The Salt Lake County Council is the land use authority for zoning map amendments. The County Council cannot amend the zoning map without first submitting the amendment to the Salt Lake County Planning Commission for the Planning Commission's recommendation. The Planning Commission held a public hearing on April 13, 2022 and has recommended approval of the rezone to the County Council. The County Council must then hold a public hearing, after which they may adopt, adopt with revisions, or reject the zoning map amendment recommended by the Planning Commission.

A rezone can be approved if it is reasonably debatable that the decision could promote the public welfare. It is not necessary to show that the decision actually promotes the public welfare, or is the best

alternative, as long as it is reasonably debatable that the public could benefit from the decision. Similarly, a rezone can be denied if it is reasonably debatable that the decision could detrimentally impact the public welfare.

CONCLUSIONS

Northrop Grumman has settled on the proposed site deliberately, based on the existing infrastructure, existing capabilities, and existing workforce. The site they have chosen has technical challenges that will need to be overcome. These challenges include significant grading challenges that will need to be addressed in a manner that ensures slope stability and re-vegetation. Flood control, runoff, site retention and the mitigation of an existing ephemeral stream will require extensive work with Salt Lake County's Flood Control and Engineering Departments, as well as the MSD's Storm Water and Grading Division. The chosen site will require Northrop Grumman to overcome significant air and water quality issues during the construction, although any large project faces these challenges to some degree.

Knowing these challenges, Northrop Grumman evaluated locating the additional capacity in West Valley City, where a rezone is not required, but still chose this site due to the existing infrastructure and manufacturing line west of S. R. 111/Bacchus Highway. The technical challenges with any other site on the west side of S. R. 111 were evaluated to be greater than the proposed site and bring less benefit than the proposed location. The impacts associated with the proposed site are significant, as are the benefits to creating up to 400 long-term high-tech manufacturing jobs, along with many short-term construction jobs. A conditional use permit would be required, should the county choose to rezone the property. This conditional use permit can include conditions to mitigate the foreseeable detrimental effects of the proposed use.

PLANNING COMMISSION RECOMMENDATION

On April 13, 2022, the Salt Lake County Planning Commission held a public hearing on the proposed rezone. After having seen a presentation from MSD Staff, questioning Staff and the applicant, and giving the public an opportunity to comment on the application, the Planning Commission recommended that the County Council Approve the rezone.

POTENTIAL COUNTY COUNCIL ACTIONS AND PLANNING STAFF RECOMMENDATION

The County Council is the legislative body charged with making policy decisions. The County Council has a recommendation of approval from the Planning Commission and may now take legislative action on a land use regulation. The County Council can now follow the Planning Commissions recommendation and approve of the rezone, approve of the rezone with conditions, deny the request for the rezone, or table the application if further information is needed. Any decision made by the Council should address specific reasons that the decision advances and serves the public welfare, or conversely, negatively impacts the public welfare.

As noted above, a rezone can be approved or denied if it is reasonably debatable that the decision could either promote – or negatively impact - the public welfare. At this point, the Planning Staff is not making a specific recommendation for approval or denial of the proposed rezone, but rather is taking a "neutral" stance. This is due to our determination that this rezone application requires a policy decision as to

whether the potential “benefits” to the public welfare outweigh the corresponding potential negative impacts and whether any such negative impacts can be reasonably mitigated.

Attachments:

1. Rezone Exhibit
2. Rezone Request Letter
3. Rezone Legal Description
4. Northrop Grumman Bacchus Works Master Plan
5. Rezone Area Site Plan
6. Building Footprints
7. Grading Plan
8. Bacchus Plant Overpressure Rings in relation to Proposed Energetic Facility Construction Memo
9. Location Justification Letter
10. Proof of Notice

Attachment #1, Rezone Exhibit

Scale: 1" = 100'

100' 0 100' 200'

A20 - Agricultural Zone

Parcel Line

Limit of Disturbance

Existing Fence Line

Limit of Disturbance

Area of Rezone (Hatched) from A20 to M2 1,547,053 SF or 35.5 Acres

Limit of Disturbance

Section Line

Limit of Disturbance

Exist. Perimeter Fence

#20

#19

M2 - Manufacturing Zone

REV	DATE	DESCRIPTION

Designed by: JT
Drafted by: KGJ
Client Name:
Northrop Grumman
21-176 Lmts of Dstb

ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
(801) 521-8529 – AWengineering.net

Limits of Disturbance

Northrop Grumman Leo Prime
4098 South 8400 West
Magna, UT

9 Feb, 2022

SHEET NO.
EX-1

Attachment 2, Rezone Request Letter

NORTHROP GRUMMAN

2/11/2022

Salt Lake County
County Zoning Official

RE: Land Zoning Proposal

Dear Zoning Official:

Northrop Grumman Company is requesting to change 35.5 acres of land located north of our current facility that is zoned as A20-Agriculture to M2-Industrial to allow us to expand our aircraft motor manufacturing line.

Respectfully yours

Northrop Grumman Corporation, Space Systems

Doug Farley PE SE
Sr. Principal Structural Engineer – Energetics Manufacturing
Douglas.farley@ngc.com
385-418-2416

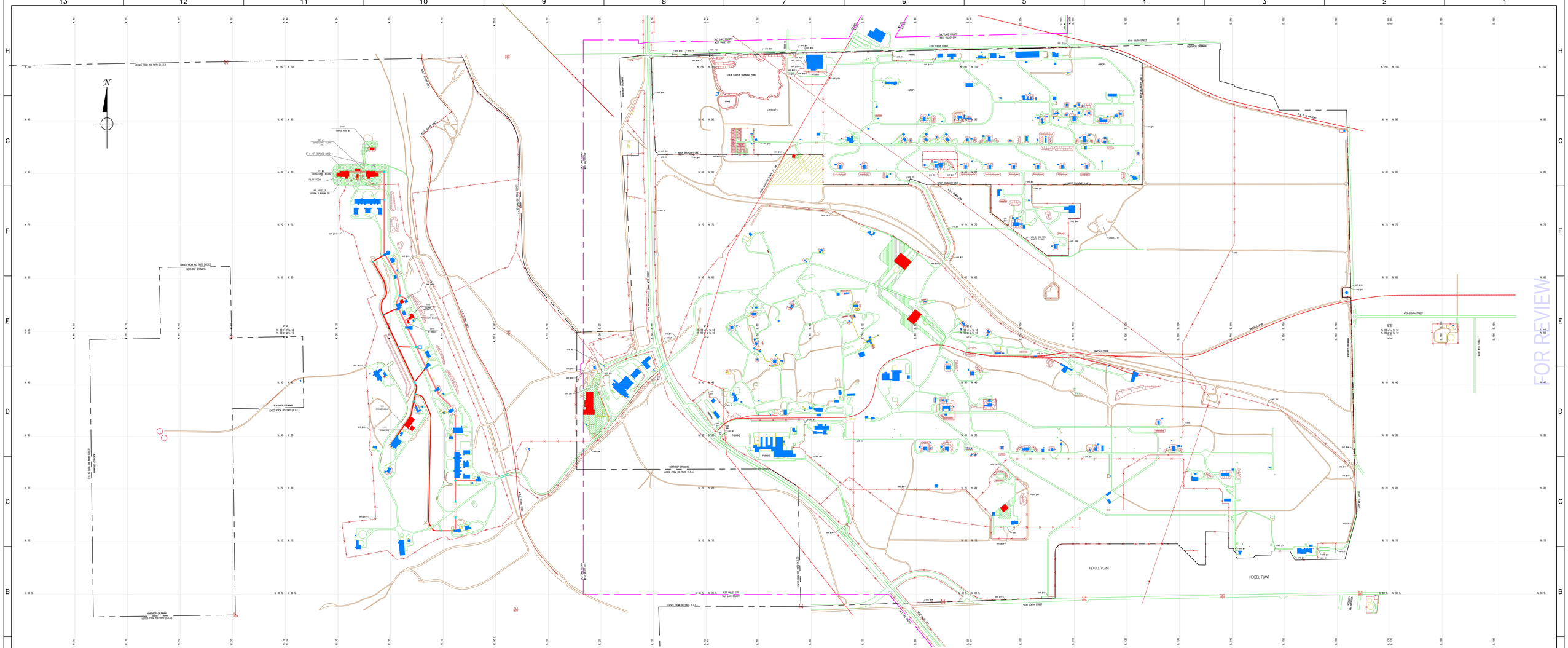
Northrop Grumman **February 18, 2022**
Zoning Description

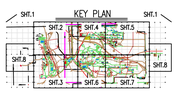
Land being a part of the North Half of Section 6, Township 2 South, Range 2 West, Salt Lake Base and Meridian, U.S. Survey, in Salt Lake County, Utah:

Beginning at a point on the South line of said North Half, located 1425.27 feet North 89°55'56" East along the Quarter Section line from a point described of record as being a copper plug in a marked stone marking the West Quarter Corner of said Section 6; and running thence North 0°14'28" East 513.61 feet to a point on a curve; thence Northeasterly along the arc of a 4048.00 foot radius curve to the right a distance of 139.71 feet (Center bears South 19°07'52" East, Central Angle equals 1°58'39" and Long Chord bears North 71°51'27" East 139.70 feet) to a point on a curve; thence Northeasterly along the arc of a 425.00 foot radius curve to the right a distance of 634.81 (Center bears South 86°16'47" East, Central Angle equals 85°34'50" and Long Chord bears North 46°30'38" East 577.42 feet); thence North 89°19'16" East 266.30 feet; thence North 77°05'57" East 684.02 feet; thence South 16°52'32" East 252.67 feet; thence South 8°52'27" East 222.73 feet; thence South 27°02'20" East 241.31 feet; thence South 8°18'52" East 436.08 feet to said Quarter Section Line; thence South 89°55'56" West 1767.33 feet along said Quarter Section Line to the point of beginning.

Contains 1,547,053 sq. ft.
Or 35.515 acres

Attachment #4 Northrop Grumman Bacchus Works Master Plan





LEGEND

- NEW BUILDINGS
- BUILDINGS
- BARRICADED BUILDINGS
- BARRICADES
- PAVED ROADS
- GRADED/IMPROVED ROADS
- RAILROADS
- WVC BOUNDARY LINE
- ATK PROPERTY LINE
- FENCE LINE

GRAPHIC SCALE

REVISIONS					APPROVALS		
REV	DESCRIPTION	FEO NO.	DATE	APP'D		BY	DATE
					DRAWN	R. WILSON	10/2021
					CHECKED		
					ENGINEER		
					OPERATIONS		
					PROCESS/MFG ENG		
					SAFETY		
					MAINTENANCE		
					APPROVED FOR RELEASE BY PROJECT ENGINEER		
					FEO NO.		

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NORTHROP GRUMMAN

SPACE SYSTEMS SECTOR
PROPULSION SYSTEMS, BACCHUS

FACILITIES ENGINEERING

BACCHUS PLANT MAP GENERAL FACILITIES NEW BLDG LOCATIONS

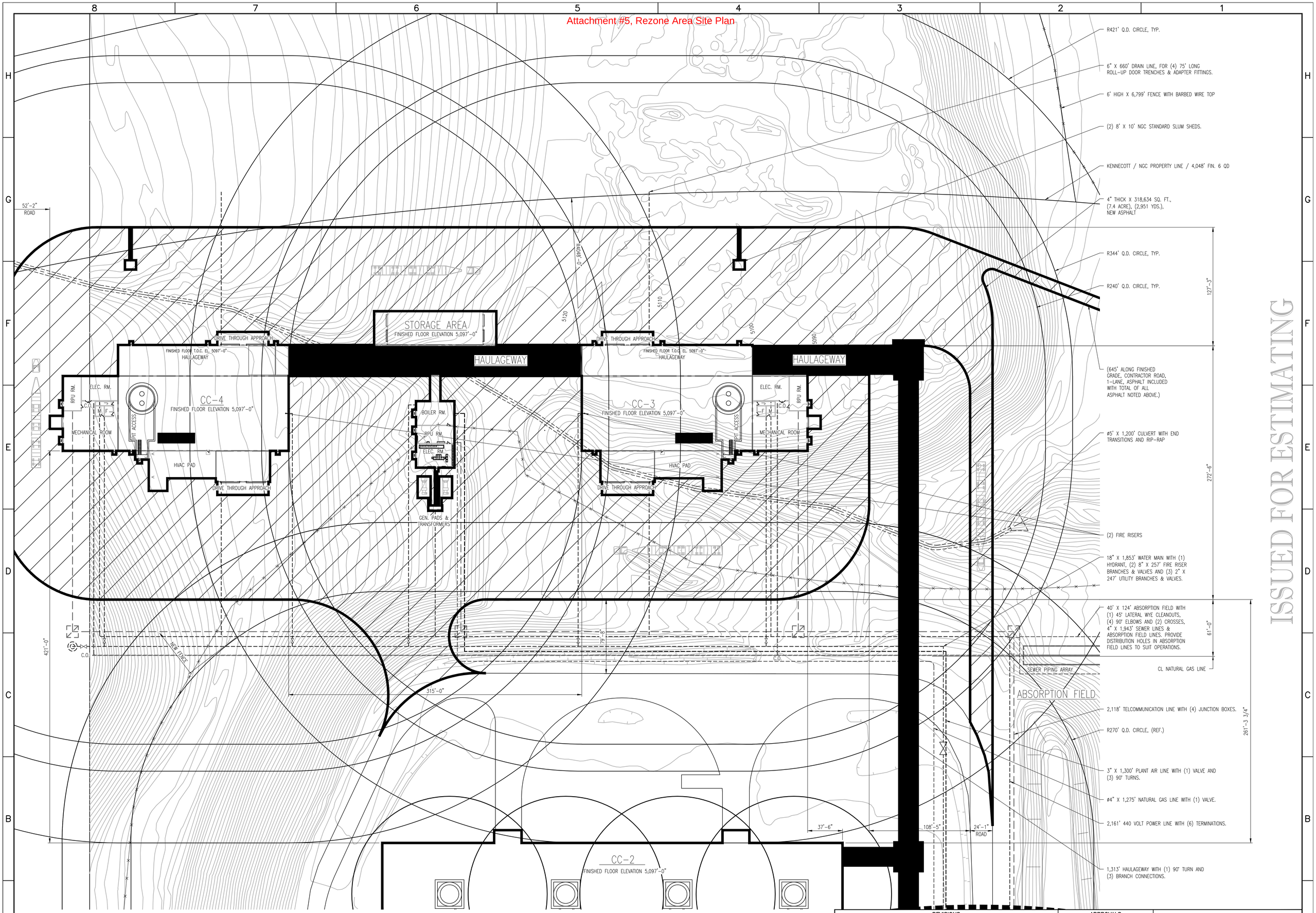
DRAWING NO: MAPS—NEW BUILDINGS

REVISION: B

SCALE: AS NOTED

SHEET: 1 OF 8

Attachment #5, Rezone Area Site Plan



BACCUS WEST CC-3 AND CC-4 SITE WORK PLAN
SCALE: 1

GRAPHIC SCALE-1

40' 20' 0 40' 80' 120'

ISSUED FOR ESTIMATING

DRAWING NUMBER	DESCRIPTION
REFERENCE DRAWINGS	

REVISIONS

REV	DESCRIPTION	FEO NO.	DATE	APPV'D

APPROVALS

	BY	DATE
DRAWN	T.L.PRYOR	7/8/2020
CHECKED	B.LENTZ	7/7/2020
ENGINEER	B.WILKINSON	7/7/2020
OPERATIONS	J.CHAVEZ	7/7/2020
PROCESS/MFG ENG		7/7/2020
SAFETY		7/7/2020
MAINTENANCE		7/7/2020
APPROVED FOR CONSTRUCTION PROJECT ENGINEER		7/7/2020

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FEO NO. 3MOB1...3000

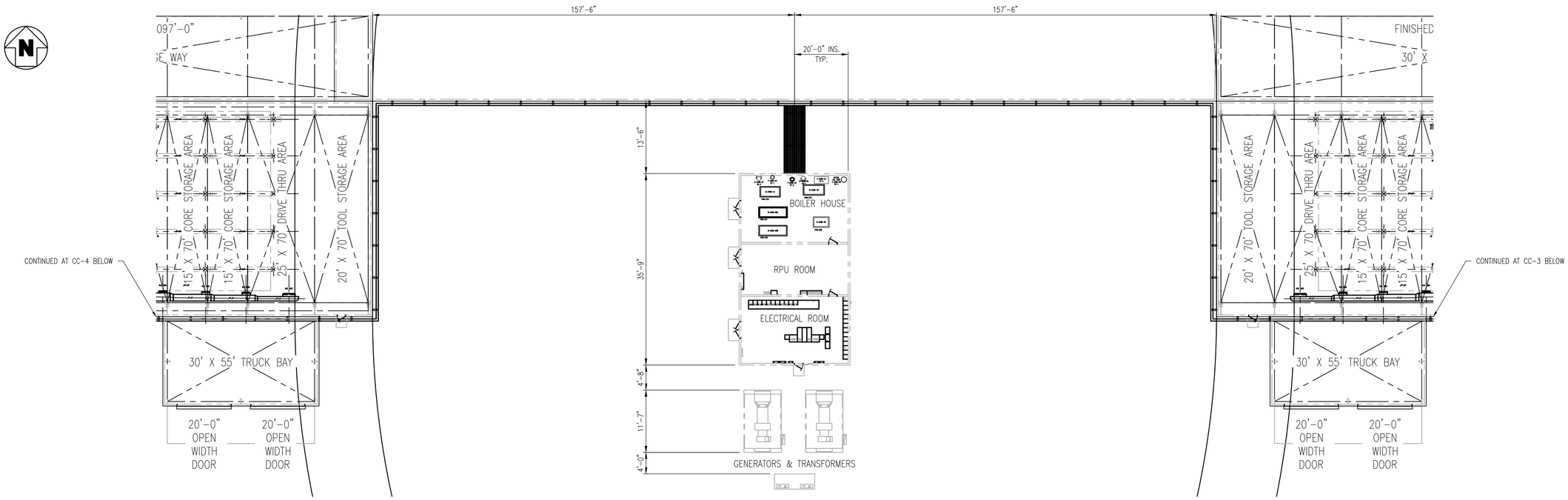
NORTHROP GRUMMAN
SPACE SYSTEMS SECTOR
PROPULSION SYSTEMS, BACCHUS

FACILITIES ENGINEERING

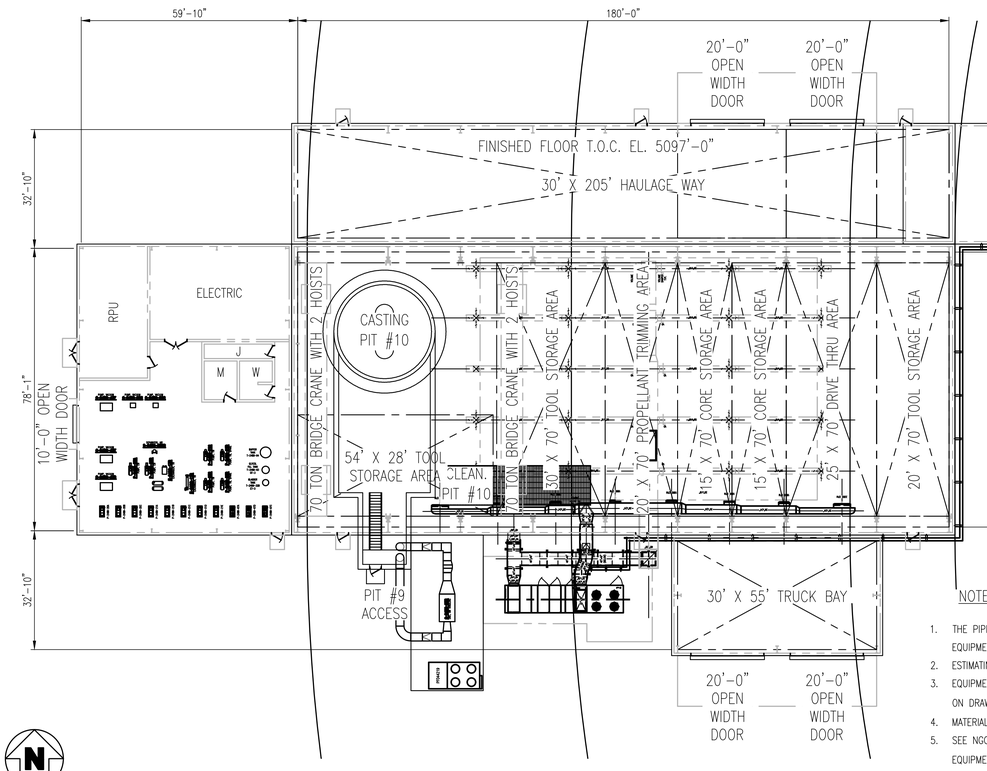
BACCHUS WEST FACILITIES CC-3 AND CC-4 SITEWORK PLAN

DRAWING NO: 0000-21010
REVISION: 0q
SCALE: AS NOTED
SHEET: 1 OF 1

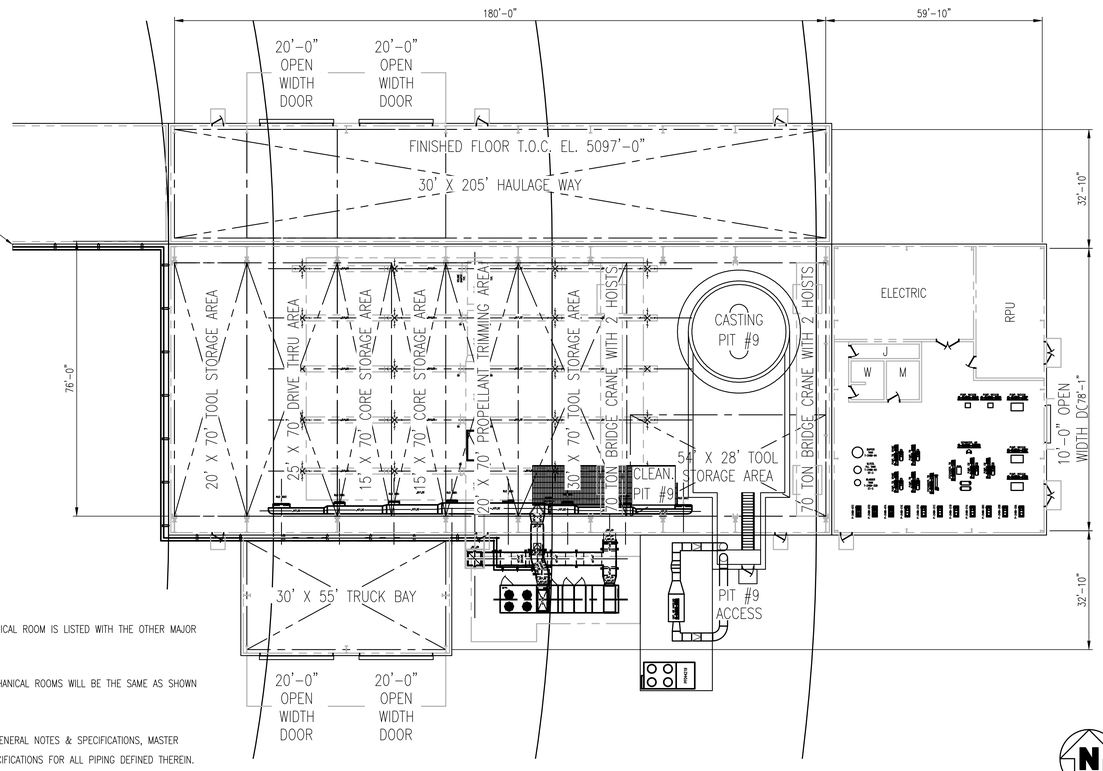
Attachment #6, Building Footprints



BACCUS WEST GEM 63XL BOILER HOUSE PARTIAL PLAN
SCALE: 2



TO BOILER HOUSE SHOWN ABOVE



BACCUS WEST GEM 63 ULA CC-4 PARTIAL PLAN
SCALE: 2

BACCUS WEST GEM 63 ULA CC-3 PARTIAL PLAN
SCALE: 2

NOTES:

1. THE PIPING BETWEEN SOURCE AND DESTINATION BOILER ROOM AND EACH MECHANICAL ROOM IS LISTED WITH THE OTHER MAJOR EQUIPMENT ON THE MASTER MATERIAL LIST.
2. ESTIMATING FOR THAT PIPING WILL ALSO BE INCLUDED THERE.
3. EQUIPMENT, DUCTWORK AND PIPING INSIDE THE TUNNELS AND THE PIT BELL MECHANICAL ROOMS WILL BE THE SAME AS SHOWN ON DRAWING NO'S.: 2487-67001 AND 2487-61001.
4. MATERIAL TAKE OFF AND ESTIMATING MAY BE DERIVED FROM THOSE DRAWINGS.
5. SEE NGC FACILITIES ENGINEERING MANAGEMENT FOR OVERALL SCOPE OF WORK, GENERAL NOTES & SPECIFICATIONS, MASTER EQUIPMENT & MATERIAL LISTS, ASSOCIATED P & ID'S AND INDIVIDUAL PIPING SPECIFICATIONS FOR ALL PIPING DEFINED THEREIN.
6. CHANGES IN ELEVATION BETWEEN SOURCE AND DESTINATION WILL BE ESTIMATED ON AN APPROXIMATE BASIS AND INCLUDED IN THE MASTER EQUIPMENT LIST, ALONG WITH THE ASSUMPTION THAT AN ISOLATION VALVE WILL BE REQUIRED AT EACH END.
7. AN 11' WIDE X 40' LONG X 8' DEEP CLEANING PIT SHALL BE PROVIDED FOR EACH CASTING PIT, AT THE LOCATIONS SHOWN, WITH A 3' WIDE ACCESS STAIRWAY AT EACH END THAT IS INCLUDED IN THE 40' LENGTH DIMENSION.
8. PIT ACCESS STAIRWAYS ARE 9 1/2" RISE PER 9 1/2" RUN WITH A 4' LANDING AT THE TOP OF THE STAIRS. STRINGERS SHALL BE C12X20.7 WITH HANDRAILING ON TOP FLANGE. STEPS SHALL BE 2" DEEP TREAD PANS FILLED WITH CONCRETE AND NON SLIP NOSING. STAIRWELLS WILL REQUIRE A ROOF AND MOISTURE BARRIER ON THE OUTSIDE OF THE WALLS, AS WELL AS THE WALLS OF THE PIT BELL MECHANICAL ROOM.

CC # 3 & CC #4 MECHANCIAL PIPING PLANS, SECT'S. & DETAILS
SCALE: SEE INDIVIDUAL VIEWS
FINISHED FLOOR ELEVATION 5092'-0"

GRAPHIC SCALE-2

0 5' 10' 20' 30' 40' 60' 80' 100'

DRAWING NUMBER	DESCRIPTION
REFERENCE DRAWINGS	

REVISIONS				
REV	DESCRIPTION	FEO NO.	DATE	APPV'D

APPROVALS		
	BY	DATE
DRAWN	T.L.PRYOR	8/20/2021
CHECKED	B.WILSON	8/24/2021
ENGINEER	B.WILKINSON	8/31/2021
OPERATIONS	J.CHAVEZ	7/7/2021
PROCESS/MFG ENG		7/7/2021
SAFETY		7/7/2021
MAINTENANCE		7/7/2021
APPROVED FOR CONSTRUCTION PROJECT ENGINEER		7/7/2021
FEO NO.	3P006....CBP10	

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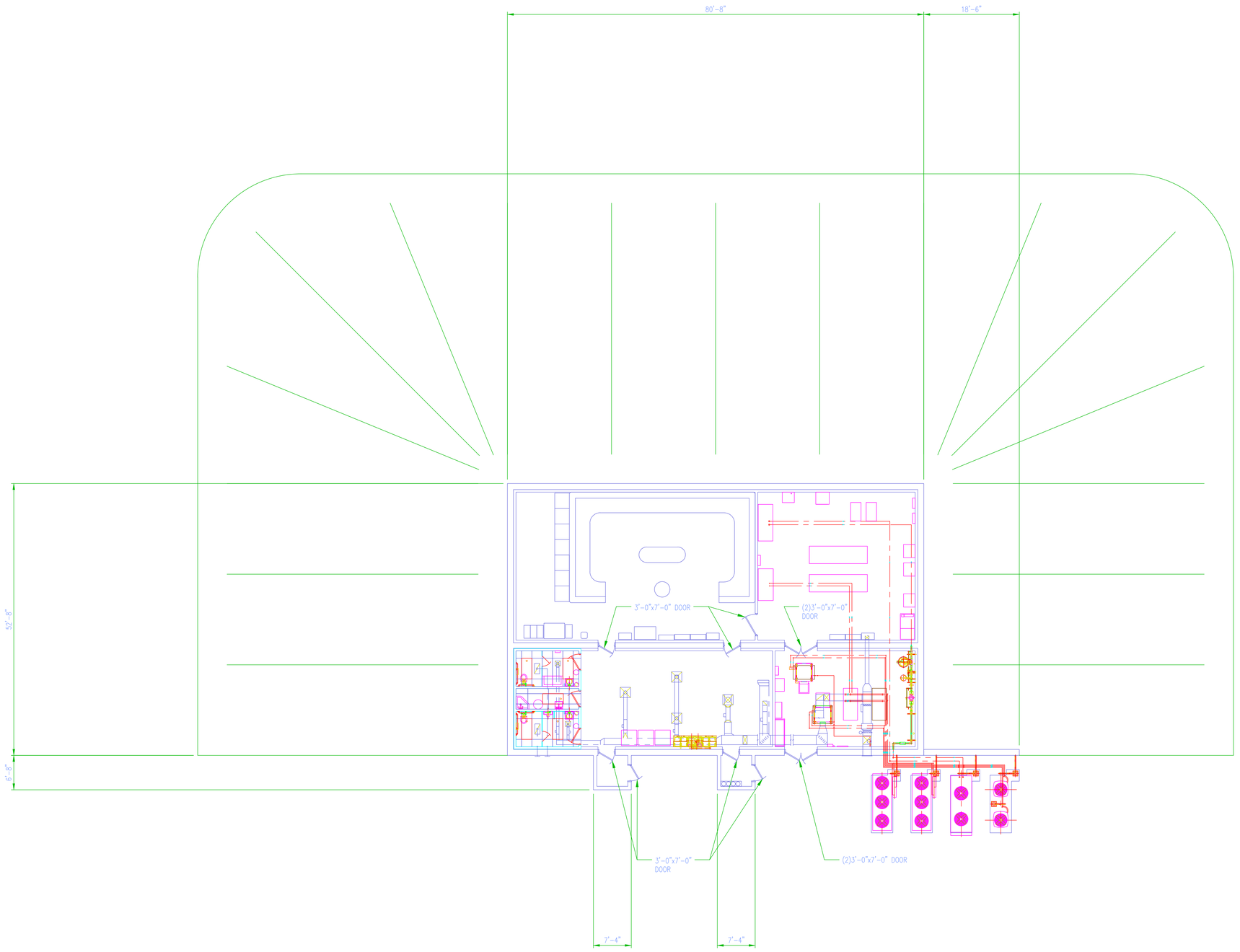
NORTHROP GRUMMAN
SPACE SYSTEMS SECTOR
PROPULSION SYSTEMS, BACCHUS

FACILITIES ENGINEERING

CAST/CURE COMPLEX NO'S. 3 & 4 UTILITY ROOM PIPING PLAN, SECTIONS & DETAILS

DRAWING NO: ????-6?000
REVISION: 0q
SCALE: AS NOTED
SHEET: 1 OF 1

ISSUED FOR ESTIMATING



PLAN VIEW

FOR REVIEW

REVISIONS					APPROVALS		
REV	DESCRIPTION	FEO NO.	DATE	APPV'D		BY	DATE
A	ISSUED FOR REVIEW		12/13/21		DRAWN	JRT	
					CHECKED		
					ENGINEER		
					OPERATIONS		
					PROCESS/MFG ENG		
					SAFETY		
					MAINTENANCE		

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APPROVED FOR CONSTRUCTION
PROJECT ENGINEER

FEO NO.

NORTHROP GRUMMAN

SPACE SYSTEMS SECTOR
PROPULSION SYSTEMS, BACCHUS

FACILITIES ENGINEERING

NEW CONTROL HOUSE BUILDING LAYLOUT PLAN VIEW

DRAWING NO: ????-45001

REVISION: A

SCALE: 1/8" = 1'-0"

SHEET: 1 OF 1

DRAWING NUMBER	DESCRIPTION
REFERENCE DRAWINGS	

Attachment #7 Grading Plan

Cut/Fill Summary

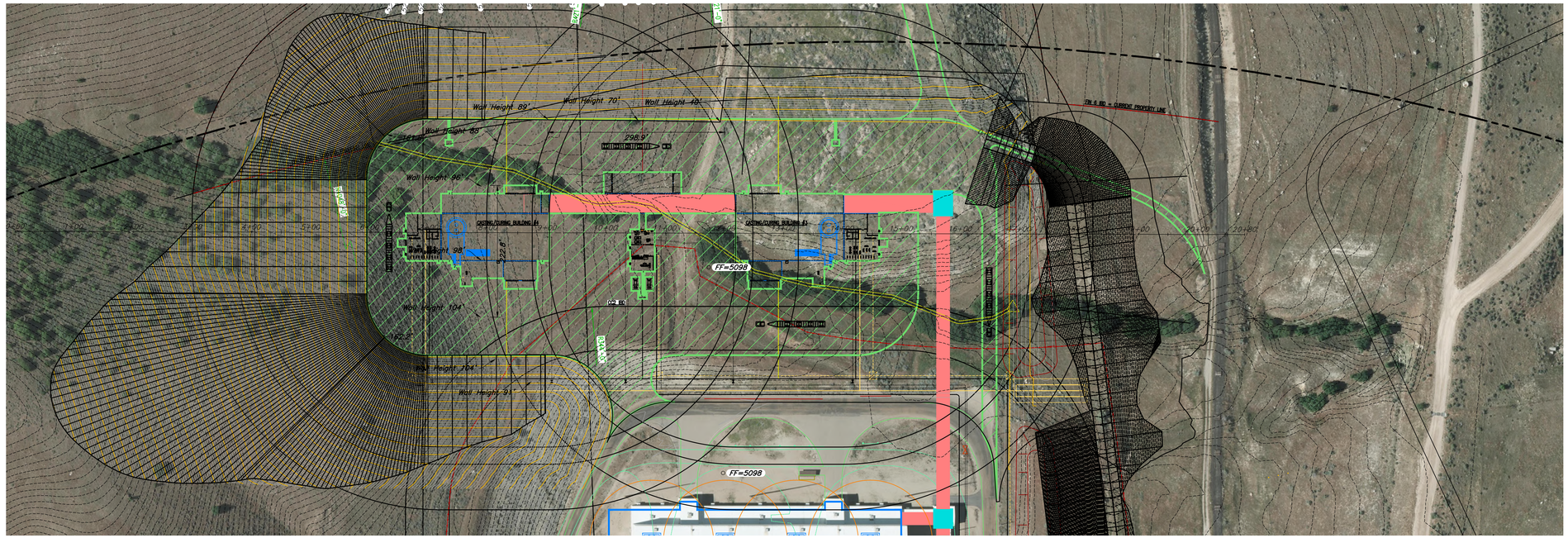
Name	Cut Factor	Fill Factor	2d Area	Cut	Fill	Net
cut and fill Pad Only	1.000	1.000	615551.21 Sq. Ft.	1000528.54 Cu. Yd.	30091.80 Cu. Yd.	970436.74 Cu. Yd.<Cut>
Totals			615551.21 Sq. Ft.	1000528.54 Cu. Yd.	30091.80 Cu. Yd.	970436.74 Cu. Yd.<Cut>

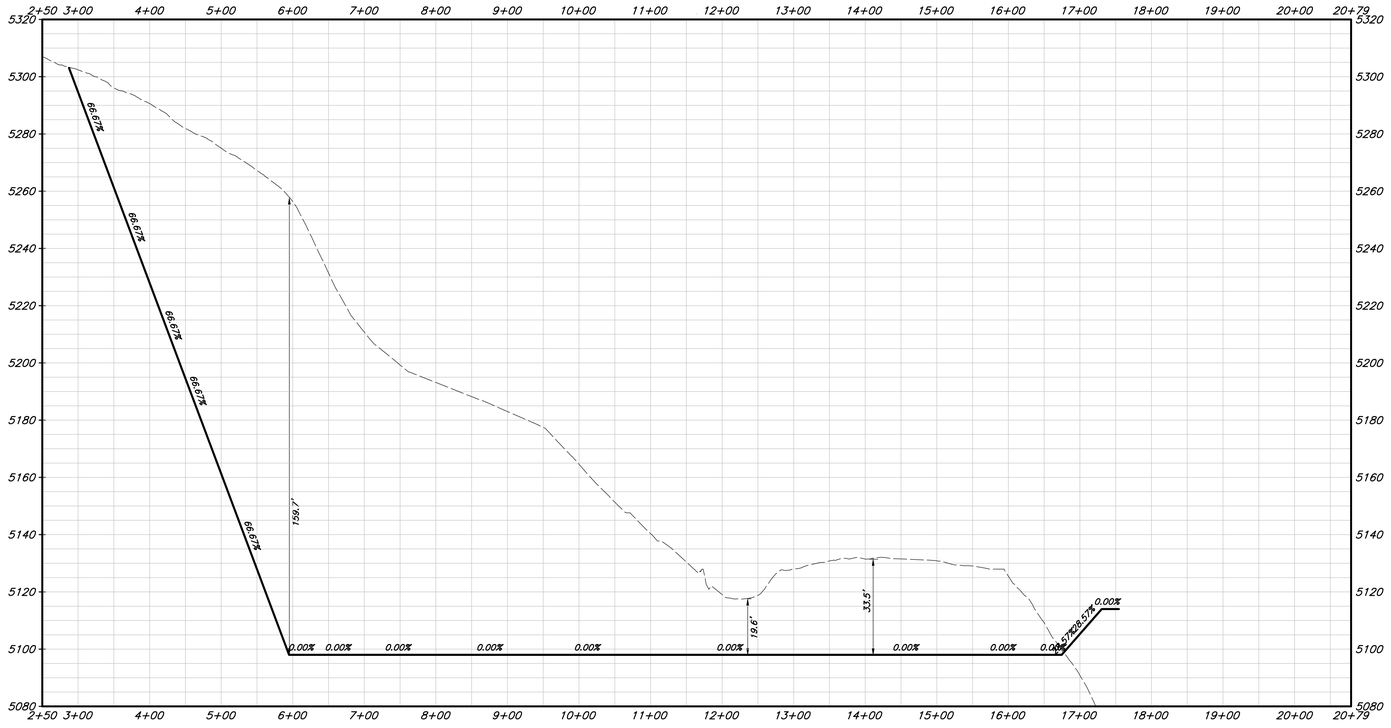
Cut/Fill Summary

Name	Cut Factor	Fill Factor	2d Area	Cut	Fill	Net
cut and fill Total	1.000	1.000	1013764.20 Sq. Ft.	1925157.39 Cu. Yd.	74194.40 Cu. Yd.	1850963.00 Cu. Yd.<Cut>
Totals			1013764.20 Sq. Ft.	1925157.39 Cu. Yd.	74194.40 Cu. Yd.	1850963.00 Cu. Yd.<Cut>

Scale: 1" = 100'

100' 0 100' 200'





ANDERSON WAHLEN & ASSOCIATES
2010 North Redwood Road, Salt Lake City, Utah 84116
(801) 521-8529 – AWEngineering.net

Designed by: JT
Drafted by: KGJ
Client Name:
Northrop Grumman
21-176 GR

Grading Exhibit

Northrop Grumman Leo Prime
4098 South 8400 West
Magna, UT

23 Aug, 2021

SHEET NO.
C2.1

Cut
Disposal
Area
Tabitha
Springs
Cut
Disposal
Area
Northrop Grumman
111

NORTHROP GRUMMAN

Memo

To: Douglas Farley

From: Adam Holloway

Date: 24 February 2022

Subject: Bacchus Plant Overpressure Rings in Relation to Proposed Energetic Facility Construction

CC: Kyle Kruger, Bernard Price, Dan Sanders

Due to a planned production quantity increase for the GEM 63XL solid rocket motor program, a series of new facilities are planned for construction at the Bacchus Plant to support this effort. This includes:

- AP Storage
- Case prep 3
- Cast cure 3 and 4
- Control house
- Finishing 8
- HTPB Tank Farm
- Mix Bowl Cleaning 4
- NDT4
- Ship 6
- Slid Storage
- Transporter Maintenance Facility
- Case manufacturing 3 lane

As a result of the hazards associated with operations conducted at the Bacchus plant to manufacture solid rocket motors and propellant, Northrop Grumman has provided information on 0.5 psi, 0.3 psi, and 0.2 psi overpressure zones based on the locations of high hazard operations.

There are two primary designations for solid propellant rocket motors manufactured at the Bacchus Facility, Class 1.1 and Class 1.3. These designations are a part of the United Nations Globally Harmonized System of Classification and Labeling Chemicals (GHS). Under this designation, a class 1.1 material is any material determined through a specified test series, which is a mass detonation hazard. The resulting effects are an overpressure shock front and fragment generation. A class 1.3 material is a mass fire hazard with only minor blast hazard but not a mass detonation hazard. [1]

Based on the lack of a mass detonation hazard associated with Class 1.3 materials, they have been excluded from definition of a “high hazard” material and in general, have little to no impact on overpressure in an initiation event. The primary hazard is a heat flux. Department of Defense Manual 4145.26 states the following about Class 1.3 materials, “Explosions will normally be confined to pressure ruptures of containers and will not produce propagating shock waves or damaging blast overpressure beyond magazine distance.”

This determination is consistent with past overpressure zone assessments and the Northrop Grumman internally designated “high hazard operation” specification. In any initiation scenario involving Class 1.3 materials such as a GEM 63XL rocket motor, the property boundary of the Bacchus plant and location of Class 1.3 facilities therein as specified by DOD 4145.26 is sufficient protection from the hazards of such materials. [2]

Adam Holloway
Hazards Analysis

REFERENCES

[1] United Nations, “Globally Harmonized System of Classification and Labelling of Chemicals (GHS)”, Fourth revised edition, New York and Geneva, 2011

[2] DoD 4145.26m, Contractors Safety Manual for Ammunition and Explosives, August 31, 2018

Attachment #9, Location Justification Letter

NORTHROP GRUMMAN

3/1/2022

Salt Lake County
County Zoning Official

RE: Land Zoning Proposal

Dear Zoning Official:

Northrop Grumman Corporation is requesting to change 35.5 acres of land north of our current facility that is zoned as A20-Agriculture to M2-Industrial to allow us to expand our rocket motor manufacturing line.

The company has selected this location after an extensive study of the surrounding area and our campus and manufacturing needs. The new facilities we are planning must be located west of Bacchus highway (UT-111), which is adjacent to the location where similar operations are currently performed in accordance with current state approval. Relocating these operations to the land east of UT-111 would change the current use of that portion of our site and would not work with the automated manufacturing and ingredient transport systems that we have in place on the west side of UT-111 and require significantly more infrastructure and bring such energetic operations closer to surrounding neighboring communities.

Our studies of alternate locations show that if we placed the new proposed manufacturing facilities to the west, the elevation cause insurmountable problems for the automated manufacturing and ingredient transport systems. If they were placed to the east, the existing Kennecott slurry line is a problem as we could not build there. Coon Canyon Road is south – so we cannot build south without causing an access problem. Building on the north end of our facilities makes the most sense so that the elevation is the same as our existing propellant mix/cast facilities, which is the best solution for transferring propellant from a propellant mixing facility to a casting facility.

Northrop Grumman strongly believes the proposed location on the north of our existing production line enables us to tie into our current production line most efficiently and will achieve the highest level of safety and least intrusion into the surrounding properties.

Respectfully yours,

Doug Farley PE SE
Sr. Principal Structural Engineer – Energetics Manufacturing
Northrop Grumman Corporation, Space Systems

Douglas.farley@ngc.com
385-418-2416

Attachment #10, Proof of Notice

SALT LAKE COUNTY

GREATER SALT LAKE Municipal Services District

NOTICE OF PUBLIC HEARING

SALT LAKE COUNTY PLANNING COMMISSION

NOTICE IS HEREBY GIVEN Pursuant to Utah Code Title 17, Chapter 27a, Section 205, that the Salt Lake County Planning Commission will hold a public hearing on Wednesday, April 13, 2022 at 8:30 AM. The purpose of this hearing is to receive public comment regarding a proposed rezone:

> **REZ2022-000535** – Northrup Grumman is requesting approval to rezone from Agricultural (A-20) to Manufacturing (M-2). **Acreage:** 35.515 acres. **Location:** 4098 South 8400 West (Legal Address), Approximately 4400 South 9200 West (Actual Location). The owner of record of the subject property is Kennecott Utah Copper Corporation. The zoning regulations for the proposed M-2 zone can be found at Salt Lake County Code chapter 19.68.

The Planning Commission will act on the proposed rezone and take comments from the public during the public hearing. Public comments will be provided pursuant to the planning commission's rules of conduct. Public comments will be limited to three minutes per person. The public is also invited to review and inspect materials related to the proposed rezone at https://www.utah.gov/pmn/index.html under the Planning Commission's agenda.

Due to the current COVID-19 pandemic, the Public Hearing will occur electronically with no physical location, as authorized by Utah Code Ann. § 52-4-207(5) and written determinations issued by the Chair of the Planning Commission. The public can join the Public Meeting via live broadcast using Cisco Webex.

To participate in the public hearing, please use the following information:

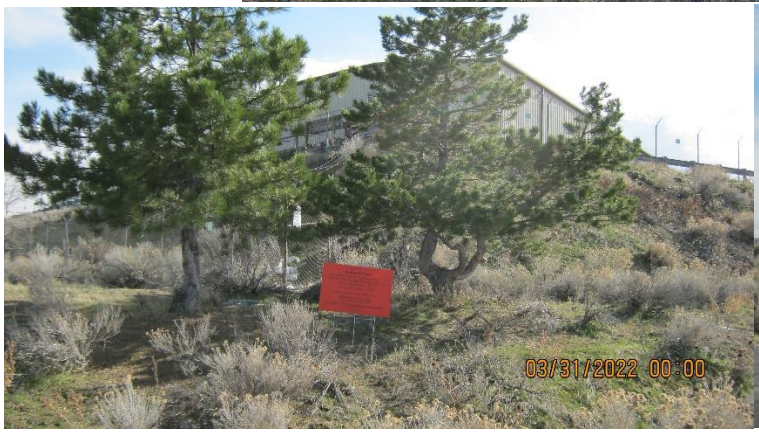
Join meeting in WebEx
Meeting number (access code): 961 841 420
Join by phone
Tap to call in from a mobile device (attendees only)
+1-213-306-3065 United States Toll (Los Angeles)
+1-602-666-0783 United States Toll (Phoenix)
Access code: 961 841 420
Global call-in numbers
Join from a video conferencing system or application
Dial wgurr@slco.webex.com
You can also dial 173.243.2.68 and enter your meeting number.
Need help? Go to http://help.webex.com

You may also submit written comments prior to the public hearing by contacting Wendy Gurr at wgurr@msd.utah.gov or (385) 468-6707. Individuals needing special accommodations (including ancillary communicative aids and services) during the public hearing should contact Ms. Gurr three days before the public hearing.

The record owner of the subject property may no later than 10 days after the April 13, 2022 public hearing file a written objection to the inclusion of the owner's property in the proposed rezone. Such objection may

be filed with Ms. Gurr at the email address specified in the previous paragraph and will be forwarded to the Salt Lake County Council.

NOTICE OF
PUBLIC HEARING
REZONE APPLICATION # REZ2022-000035
PROPERTY LOCATION Approx. 4400 S. 9200 West
FROM A-20 (AGRICULTURAL) ZONE
TO M-2 (Manufacturing) ZONE
PUBLIC HEARING WILL BE HELD ON
Wednesday, April 13, 2022 at 5:30pm
LOCATION OF HEARING
Online: WebEx 961.341.420. See msd.utah.gov/agenda's for details
FOR INFORMATION
msd.utah.gov/agendas OR
385-468-6729
03/31/2022 00:00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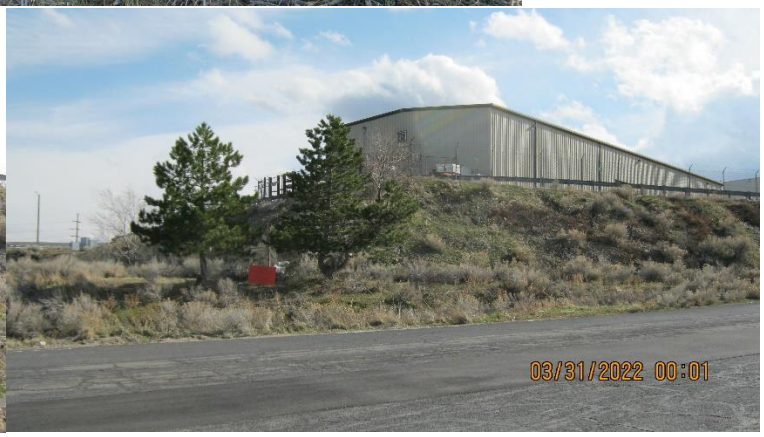
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