



National
Aeronautics and
Space
Administration

Routing Slip

Main Suite		Name/Signature	Date	Action	<input type="checkbox"/>
				Approval	<input type="checkbox"/>
1	JP	R. Fowler	11/30/2023	Call me	<input type="checkbox"/>
		RICHARD FOWLER <small>Digitally signed by RICHARD FOWLER Date: 2023.11.30 14:06:22 -06'00'</small>		Concurrence	<input type="checkbox"/>
2	JA	M. Schwartz	12/01/2023	File	<input type="checkbox"/>
		MARY SCHWARTZ <small>Digitally signed by MARY SCHWARTZ Date: 2023.12.01 09:26:34 -06'00'</small>		Information	<input type="checkbox"/>
3	JA	J. Walker	12/01/2023	Investigate and Advise	<input type="checkbox"/>
		JOEL WALKER <small>Digitally signed by JOEL WALKER Date: 2023.12.01 10:22:52 -06'00'</small>		Note and Forward	<input type="checkbox"/>
4	AA	ECCO		Note and Return	<input type="checkbox"/>
				Per Request	<input type="checkbox"/>
5	AA	D. Shafer		Per Phone Conversation	<input type="checkbox"/>
				Recommendation	<input type="checkbox"/>
6	AA	S. Koerner	12/05/2023	See me	<input type="checkbox"/>
		STEPHEN KOERNER <small>Digitally signed by STEPHEN KOERNER Date: 2023.12.05 08:05:56 -06'00'</small>		Signature	<input type="checkbox"/>
7	AA	V. Wyche		Circulate and Destroy	<input type="checkbox"/>
					<input type="checkbox"/>
					<input type="checkbox"/>
					<input type="checkbox"/>
					<input type="checkbox"/>
					<input type="checkbox"/>

Suite (or other designation)

JP/Planning, Integration and Environmental Office

Tel. No. (or suite) & Ext.

(281) 792-2329

Name

Jan Vedanth

Signature

Janani Vedanth

Digitally signed by Janani Vedanth
Date: 2023.11.30 11:57:56 -06'00'

Date

11/30/2023

EXECUTIVE SUMMARY FOR CORRESPONDENCE*Overall Instructions - Be concise, yet complete**Must be type written***Issue:**

Enclosed for your approval and signature is the Memorandum of Agreement Addendum (MOAA) among the National Aeronautics and Space Administration's Lyndon B. Johnson Space Center (JSC), the Texas State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation (ACHP) to mitigate the adverse effect of the JSC Building 31 Annex Addition.

Background:

The B 31 Annex project includes the design and construction of the approximately 20,000 square feet LEED Silver building being built around the exterior of the existing west high bay and joined to Building 31 at the south main entrance. A Memorandum Of Agreement (MOA) was executed for the Annex on January 7, 2022. It was determined that B 31 needed additional components that include an electrical transformer yard, emergency electrical generator yard next to Building 31N, and a nitrogen system control room near the LN2/GN2 tanks on the north side of the building's high bay. This MOAA modifies the existing MOA (Whereas Clause #3 of the original agreement) to ensure Section 106 compliance for the additional components of the Annex project.

Current Status:

The MOAA is currently not executed, and is ready for the Center Director's acceptance and signature. Following the face to face meeting held between SHPO, ACHP and NASA on September 29th, 2023 it was determined that JSC is out of compliance and that work had been initiated without execution of the revised MOA for B 31 additions.

Alternate Options:**Open Actions:**

This MOA requires the signature of JSC Center Director in order for JSC to be in compliance with Section 106 of the National Historic Preservation Act (NHPA).

Initiator Name: Janani Vedanth**Initiator
Signature:****Janani Vedanth**Digitally signed by Janani Vedanth
Date: 2023.11.06 13:57:31 -06'00'**Date:**11/6/2023**Org Code:** JP**Phone Number:** 281-667-6287

**AMENDMENT #1 TO
MEMORANDUM OF AGREEMENT
AMONG
THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION,
LYNDON B. JOHNSON SPACE CENTER,
THE TEXAS STATE HISTORIC PRESERVATION OFFICER,
AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE ADDITIONAL COMPONENTS TO ANNEX AT
BUILDING 31, LUNAR MISSION AND SPACE EXPLORATION FACILITY,
AT
JOHNSON SPACE CENTER
HARRIS COUNTY, TEXAS**

WHEREAS, the Agreement was executed on January 7, 2022.






WHEREAS, the National Aeronautics and Space Administration (NASA), Lyndon B. Johnson Space Center (JSC) determined that additional phased components of the Annex Addition to Building 31 were separately developed as project funding allowed, which include an electrical transformer yard, emergency electrical generator yard next to Building 31 North, and a nitrogen system control room near the LN2/GN2 tanks on the north side of the building's high bay; and

WHEREAS, NASA JSC has determined that the generator, transformer, and the nitrogen system control room represent modifications to the undertaking as originally described and contribute to NASA's previous adverse effect determination for the Building 31 Annex, and the Texas State Historic Preservation Officer (SHPO) concurred with NASA JSC's determination on September 29, 2023; and

WHEREAS, NASA JSC, SHPO, and the Advisory Council on Historic Preservation (ACHP) met on September 29, 2023, and agreed that the existing Mitigation stipulated in the Agreement is still acceptable and applicable for the additional phased components for which this Amendment #1 is being executed; and

NOW, THEREFORE, in accordance with Stipulation VI. of the Agreement, NASA JSC, SHPO, and ACHP agree to amend the January 7, 2022 Agreement as follows:

JP/JVedanth:11/30/2023:22329

CONCUR	OFFICE ID	JP/RBF	JA/MBS	JA/JBW	AA/DMS	AA/SAK		
	SIGNATURE	 RICHARD D. FOWLER	 MARY SCHWARTZ	 JOEL WALKER	 DONNA SHAFNER	 STEPHEN KOERNER		
	DATE	2023.11.30 14:07:01 -0600	2023.12.01 09:29:16 -0600	2023.12.01 10:24:11 -0600	2023.12.07 16:29:25 -0600	2023.12.05 08:06:44 -0600		

**AMENDMENT #1 TO
MEMORANDUM OF AGREEMENT
AMONG
THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION,
LYNDON B. JOHNSON SPACE CENTER,
THE TEXAS STATE HISTORIC PRESERVATION OFFICER,
AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE ADDITIONAL COMPONENTS TO ANNEX AT
BUILDING 31, LUNAR MISSION AND SPACE EXPLORATION FACILITY,
AT
JOHNSON SPACE CENTER
HARRIS COUNTY, TEXAS**

WHEREAS, the Agreement was executed on January 7, 2022.

WHEREAS, the National Aeronautics and Space Administration (NASA), Lyndon B. Johnson Space Center (JSC) determined that additional phased components of the Annex Addition to Building 31 were separately developed as project funding allowed, which include an electrical transformer yard, emergency electrical generator yard next to Building 31 North, and a nitrogen system control room near the LN2/GN2 tanks on the north side of the building's high bay; and

WHEREAS, NASA JSC has determined that the generator, transformer, and the nitrogen system control room represent modifications to the undertaking as originally described and contribute to NASA's previous adverse effect determination for the Building 31 Annex, and the Texas State Historic Preservation Officer (SHPO) concurred with NASA JSC's determination on September 29, 2023; and

WHEREAS, NASA JSC, SHPO, and the Advisory Council on Historic Preservation (ACHP) met on September 29, 2023, and agreed that the existing Mitigation stipulated in the Agreement is still acceptable and applicable for the additional phased components for which this Amendment #1 is being executed; and

NOW, THEREFORE, in accordance with Stipulation VI. of the Agreement, NASA JSC, SHPO, and ACHP agree to amend the January 7, 2022 Agreement as follows:

1. Amend Whereas Clause #3 on Page 1 so it reads as follows:

WHEREAS, the undertaking consists of constructing an addition around the existing high bay of Building 31 for the new curation laboratories and: an electrical transformer yard, emergency electrical generator yard next to B 31 N, and a nitrogen system control room near the LN2/GN2 tanks on the north side of the building's high bay; and

SIGNATORIES:

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Lyndon B. Johnson Space Center

Vanessa Wyche Digitally signed by Vanessa Wyche
Date: 2023.12.11 16:41:27 -06'00'

Vanessa E. Wyche

Director

Date

TEXAS STATE HISTORIC PRESERVATION OFFICER

DocuSigned by:

A2A9711769D2462...

Mark Wolfe

State Historic Preservation Officer

12/21/2023

Date

ADVISORY COUNCIL ON HISTORIC PRESERVATION

Reid Nelson

Executive Director

Date

**MEMORANDUM OF AGREEMENT
AMONG
THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION,
LYNDON B. JOHNSON SPACE CENTER,
THE TEXAS STATE HISTORIC PRESERVATION OFFICER,
AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION
REGARDING THE ANNEX ADDITION TO
BUILDING 31, LUNAR MISSION AND SPACE EXPLORATION FACILITY,
AT
JOHNSON SPACE CENTER
HARRIS COUNTY, TEXAS**

WHEREAS, the planned increase in volume of Astromaterials returning from missions to the Johnson Space Center (JSC) will impact the ability to process samples, the National Aeronautics and Space Administration (NASA) Lyndon B. Johnson Space Center (JSC) is planning to build an annex to Building 31, Lunar Mission and Space Exploration Facility (undertaking); and

WHEREAS, the proposed addition to Building 31 will be used for curating the contamination knowledge samples from Mars 2020 (the first step towards Mars sample return); conducting preliminary examination to generate a sample catalog and make OSIRIS-REx asteroid samples available to the international scientific community; performing the initial sample analyses to address the Level 1 OSIRIS-REx mission requirements; and developing the curation capability for processing and handling cold lunar samples.; and

WHEREAS, the undertaking consists of constructing an addition around the existing high bay of Building 31 for the new curation laboratories; and

WHEREAS, NASA JSC has defined the undertaking's area of potential effects (APE) as described in Attachment 1; and

WHEREAS, NASA JSC is eligible for the National Register of Historic Places (NRHP) as a historic district per the Section 110 (54 U.S.C. §306101) survey supporting that determination, "*Historic and Architectural Survey and Evaluation of Facilities that have Reached the Age of 45-50 Years*" completed in 2017; and

WHEREAS, the Astromaterials Research and Exploration Science Division Facilities, Lunar Mission and Space Exploration Facility (Building 31) and the Lunar Sample Curatorial Facility (Building 31N) are eligible for listing on the NRHP under Criterion A (space exploration and significant historic events), Criterion B (historically significant individuals associated with the building), and Criterion C (engineering, i.e. historic materials characteristic of a type, period, or method of construction); and is a contributing element to the eligible JSC Historic District as it conveys a visual sense of the overall historic environment, represents an interrelated arrangement of

historically connected properties, and is united historically with numerous other buildings and events within the geography of the JSC campus. The Astromaterials Research and Exploration Science Division Facilities is also eligible under Criteria Consideration G, for the significance of work completed for the Space Shuttle, ISS, and Orion Programs, achieved within the past 50 years; and

WHEREAS, this undertaking involves ground disturbance, but that NASA JSC has previously determined the campus is disturbed to the extent that there is no potential for intact archaeological resources and the SHPO has concurred with this determination; and

WHEREAS, this action to construct this addition is a Federal undertaking subject to consultation pursuant to 36 CFR Part 800, the regulations implementing Section 106 of the National Historic Preservation Act (54 U.S.C. § 306108), and NASA JSC has consulted with the Texas Historical Commission as the State Historic Preservation Officer (SHPO); and

WHEREAS, NASA JSC has determined that the addition to Building 31 for the new curation laboratories will result in “an adverse effect” to Building 31 and the Historic District and the SHPO concurred with our determination on December 23, 2020; and

WHEREAS, NASA JSC has consulted with the NASA Alumni League and Houston Mod regarding the effects of the undertaking on historic properties and submitted information to the public via email and received comments from Houston Mod; and

WHEREAS, certain design changes were made as a result of SHPO and consulting party input including changing windows on the west side to better reflect ribbon windows, reducing the size and orientation of the two proposed towers on the east elevation, reducing the size of the main entrance, changing the expansive channel glass on the south side to gray flat panel glass, and adding upper and lower bands of pre-cast exposed aggregate facing (PEAF) material to reflect historic architecture, although such design changes did not fully mitigate the adverse effect; and

WHEREAS, in accordance with 36 C.F.R. § 800.6(a)(1), NASA JSC has notified the Advisory Council on Historic Preservation (ACHP) of its adverse effect determination providing the specified documentation, and the ACHP has chosen to participate in the consultation pursuant to 36 C.F.R. § 800.6(a)(1)(iii); and

NOW, THEREFORE, NASA JSC, SHPO, and ACHP agree that the undertaking shall be implemented in accordance with the following stipulations in order to take into account the effect of the undertaking on historic properties.

STIPULATIONS

NASA JSC shall ensure that the following measures are carried out:

I. MINIMIZATION AND MITIGATION

- A. NASA JSC will monitor construction to ensure the design changes to the proposed addition that were made as a result of consultation, including changes to windows on the west side, reduction in size and orientation of the two proposed towers on the east elevation, reduction in size of the main entrance, materials changes to the south side to gray flat panel glass, and the addition of upper and lower bands of PEA material, are properly implemented. If NASA JSC identifies the need to alter the project design in a way that would result in modifications of these changes it will consult with the SHPO.
- B. NASA JSC will complete Historic American Engineering Record (HAER) Level II documentation for Building 31, Lunar Mission and Space Exploration Facility. The documentation will be consistent with Historic American Engineering Record Guidelines for Historical Reports (2008, updated 2015) produced by the National Park Service (NPS) and using the Secretary of the Interior Standards for recording Architectural, Engineering, and Landscape Documentation. NASA JSC shall afford the SHPO an opportunity to review the draft documentation prior to final submission to the Library of Congress. NASA JSC will ensure relevant drawings and photography are completed prior to the start of construction activities that would impact such components. NASA JSC will complete HAER documentation within 4 years of the MOA's execution.
- C. Prior to the start of construction activities, NASA JSC shall perform a 3-Dimensional laser scan of Building 31, which will generate a 3D model of the building. The recordation and building images will be incorporated into a 3D virtual tour of the Center and will be placed on the JSC Historic Preservation Website which is available to the public. NASA JSC will complete the scans within 4 years of the MOA's execution.
- D. NASA JSC will compile a historic recordation, drawings, photos, oral histories, virtual display, and film of important projects and aspects of the building that will be placed on the JSC Historic Preservation Website to document this building. The JSC Historic Preservation Website is open to the public. NASA JSC will complete collection and curation of this documentation within 4 years of the MOA's execution.

II. DURATION

This MOA will expire if its terms are not carried out within five (5) years from the date of its execution. Prior to such time, NASA JSC may consult with the other signatories to reconsider the terms of the MOA and amend it in accordance with Stipulation VI below.

III. POST REVIEW DISCOVERIES

NASA JSC shall ensure that all construction contractors involved in ground disturbing activities are aware of the provisions in Stipulations III and IV.

- A. If previously unidentified historic properties or unanticipated effects to historic properties are discovered during construction, the construction contractor shall immediately halt all activity within a one hundred (100) foot radius of the discovery, notify NASA JSC of the discovery, and implement interim measures to protect the discovery from looting and vandalism.
- B. Immediately upon receipt of the notification required in Stipulation III. A, NASA JSC shall:
 - 1. Inspect the construction site to determine the extent of the discovery and ensure that construction activities have halted;
 - 2. Clearly mark the area of discovery;
 - 3. Implement additional measures, as appropriate, to protect the discovery from looting and vandalism;
 - 4. Have a professional archaeologist inspect the construction site to determine the extent of the discovery and provide recommendations regarding its NRHP eligibility and treatment; and
 - 5. Notify the SHPO, NASA FPO, and other consulting parties, as appropriate, of the discovery describing the measures that have been implemented.
- C. Within forty-eight (48) hours of receipt of the notification described in Stipulation III. B. 5, NASA JSC shall provide the SHPO and other consulting parties, as appropriate, with its assessment of the NRHP eligibility of the discovery and the measures it proposes to take to resolve adverse effects. In making its official evaluation, NASA JSC, in consultation with the SHPO, may assume the discovery to be NRHP eligible for the purposes of Section 106 pursuant to 36 C.F.R. 800.13(c). SHPO and other consulting parties, as appropriate, shall respond within forty-eight (48) hours of receipt of notification.
- D. NASA JSC shall take into account the SHPO and consulting party recommendations on eligibility and treatment of the discovery, shall ensure that appropriate actions are carried out, and provide the SHPO and other consulting parties with a report on these actions when they have been implemented.

- E. Construction activities may proceed in the area of the discovery, when NASA JSC has determined that implementation of the actions undertaken to address the discovery pursuant to Stipulation III are complete.
- F. Any disputes over the evaluation or treatment of previously unidentified resources will be resolved in accordance with Stipulation V of this Agreement.

IV. HUMAN REMAINS

NASA JSC shall make all reasonable efforts to avoid disturbing gravesites, including those containing Native American human remains and associated funerary artifacts. NASA JSC shall treat all human remains in a manner consistent with the ACHP "Policy Statement Regarding Treatment of Burial Sites, Human Remains and Funerary Objects" (February 23, 2007; or ACHP policy in effect at the time remains and funerary artifacts are handled.

- A. If the remains are determined to be of Native American origin, NASA JSC shall comply with the provisions of the Native American Graves Protection and Repatriation Act (NAGPRA) (25 U.S.C. Sec 3001 et seq.).
- B. NASA JSC shall use reasonable efforts to ensure that the general public is excluded from viewing any burial site or associated funerary artifacts. The consulting parties to this agreement shall release no photographs of any burial site or associated funerary artifacts to the press or general public. NASA JSC shall notify the appropriate Federally-recognized Tribe(s) when burials, human skeletal remains, or funerary artifacts are encountered on the project, prior to any analysis or recovery. NASA JSC shall deliver any Native American human skeletal remains and associated funerary artifacts recovered pursuant to this agreement to the appropriate tribe to be reinterred. The disposition of any other human skeletal remains and associated funerary artifacts shall be governed as specified in any permit issued by the SHPO or any order of the local court authorizing their removal.

V. DISPUTE RESOLUTION

Should any signatory to this MOA object at any time to any actions proposed or the manner in which the terms of this MOA are implemented, NASA JSC shall consult with such party to resolve the objection. If NASA JSC determines that such objection cannot be resolved, NASA JSC will:

- A. Forward all documentation relevant to the dispute, including NASA JSC's proposed resolution, to the NASA FPO and the ACHP. The ACHP shall provide NASA JSC with its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation. Prior to reaching a final decision on the dispute, NASA JSC shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP and signatories, and provide them with a copy of this written response. NASA JSC shall then proceed according to its final decision.
- B. If the ACHP does not provide its advice regarding the dispute within the thirty (30) day time period, NASA JSC may make a final decision on the dispute, provide that decision to signatories in writing, and proceed accordingly. Prior to reaching such a final decision, NASA JSC shall prepare a written response that takes into account any timely comments regarding the dispute from the signatories to the MOA, and provide them and the ACHP with a copy of such written response.
- C. NASA JSC's responsibility to carry out all other actions subject to the terms of this MOA that are not the subject of the dispute remain unchanged.

VI. AMENDMENTS

This MOA may be amended when such an amendment is agreed to in writing by all signatories. The amendment will be effective on the date a copy signed by all of the signatories is filed with the ACHP.

VII. TERMINATION

- A. If any signatory to this MOA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other parties to attempt to develop an amendment per Stipulation VI, above. If within thirty (30) days (or another time period agreed to by all signatories) an amendment cannot be reached, any signatory may terminate the MOA upon written notification to the other signatories.
- B. Once the MOA is terminated, and prior to work continuing on the undertaking, NASA JSC must either (a) execute and MOA pursuant to 36 C.F.R. § 800.6, or (b) request, take into account, and respond to the comments of the ACHP under 36 C.F.R. § 800.7. NASA JSC shall notify the signatories as to the course of action it will pursue.

EXECUTION of this MOA by NASA JSC, the SHPO, and the ACHP and implementation of its terms evidence that NASA has taken into account the effects of this undertaking on historic properties and afforded the ACHP an opportunity to comment.

SIGNATORIES:

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

Lyndon B. Johnson Space Center


**VANESSA
WYCHE**

Digitally signed by
VANESSA WYCHE
Date: 2022.01.07
15:11:33 -06'00'


Vanessa E. Wyche
Director

Date

TEXAS STATE HISTORIC PRESERVATION OFFICER



Mark Wolfe
State Historic Preservation Officer



Date

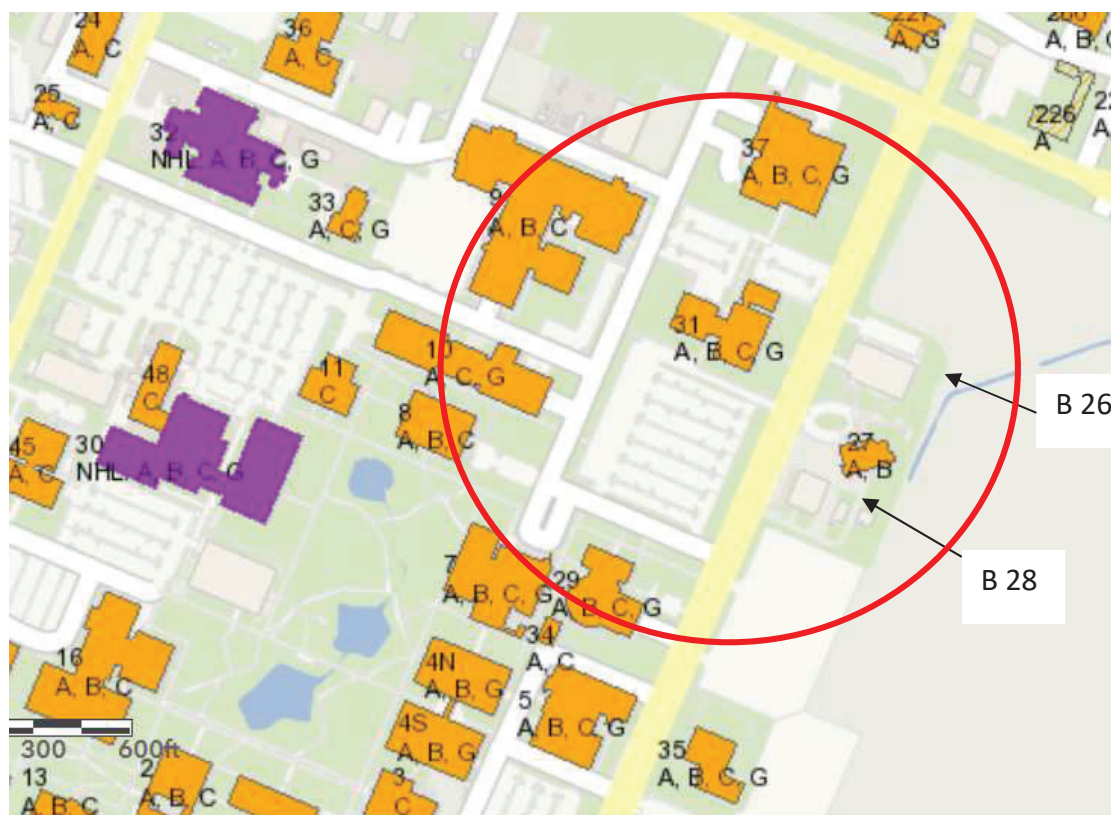
ADVISORY COUNCIL ON HISTORIC PRESERVATION

Reid Nelson
Executive Director, Acting

Date

ATTACHMENT 1

The Area of Potential Effect to the proposed addition to Building 31 includes Building 26, the Columbia Center for Human Space Flight Performance and Research, constructed between 2008 and 2010, supports pre-flight astronaut training, including astronaut crew strength training and post-flight rehabilitation; Building 27, Astronaut Quarantine Facility, completed in 2005 designed as a crew isolation facility supporting Space Shuttle flight crews before and after missions and continues to support crews aboard the International Space Station; Building 28, Auxiliary Chiller Facility, constructed in 1991 to support the east side of the center; Building 29, Long Duration Evaluation Facility, originally constructed in 1965, renovated in 2008 to support the Constellation Program and now supports Engineering, Avionics and Advanced Exploration Systems; Building 10, Technical Services Shop, designed to contain a machine shop, chem-mill, finishing foundry and heat treating, electronics, model making, metal fabrication, and assembly areas for the construction of spacecraft prototypes and flight hardware; Building 9, the Systems Integration Facility, originally built to support equipment storage and provide space for experimental investigations on advanced materials, spacecraft structural components, and structural assemblies and now supports International Space Station training and robotics; and Building 37, Life Sciences Laboratory, originally designed as the Lunar Receiving Laboratory in support of the Apollo Program's lunar landing missions (1969 to 1972) and evolved to support spaceflight medical operations.



Area of Potential Effect – Magenta designates NHL; Orange designates NRHP eligible